Original Articles.

REPORT OF AN EPIDEMIC OF PARATYPHOID FEVER AT THE BOSTON STATE HOSPITAL, MASSACHUSETTS, 1910.

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I.

EPIDEMIOLOGICAL FEATURES OF AN OUTBREAK OF PARATYPHOID FEVER (BACILLUS PARATYPHOSUS ALPHA).*

BY MYRTELLE M. CANAVAN, M.D., BOSTON,

INTRODUCTION.

This paper, together with four articles to follow, constitutes a report of work done with an epidemic of about 30 cases of a mild form of paratyphoid fever which occurred at the Boston State Hospital, between Oct. 19 and Dec. 1, 1910. There were no deaths. The epidemic was confined largely to employees, although a few patients were also affected.

The present report discusses certain general features of the epidemic, the possible foci of origin and distribution of the disease (with remarks on plumbing and food-storage), methods of prophylaxis and treatment, laboratory methods employed for differentiation of the organisms and some facts of clinical pathology.

The outbreak of paratyphoid fever, ushered in by 12 cases of illness (fever, aches, malaise), in October, 1910, was not recognized as such at once, or even as belonging to the typhoidal group of diseases. There had not been within ten years any similar outbreak. The disease was mild. Many cases gave such mild symptoms that they had to be excluded from the category of true disease of any sort. Sixteen further cases occurred in November and two more in December.

Before presenting charts illustrating certain features of the epidemic, a brief description of the hospital and of certain epidemiological factors will be presented.

DESCRIPTION OF HOSPITAL.

The Boston State Hospital, Dorchester Centre, Massachusetts, lies upon a triangular plot of land containing 232 acres, unevenly divided by Morton Street, east of which lies the older women's department, with seven buildings closely grouped, with a population of approximately the following in 1910: 475 patients, 80 nurses, 34 employees, 5 medical officers, which, with 24 non-resident employees, make up a total of 618 persons. The officers are lodged in various parts of the buildings. The resident employees have a separate eating place.

It is necessary to speak of the men's department, because, although the epidemic was largely in the women's department, there is a warrantable suspicion that the source of the epidemic may have been in the men's department. In point of fact, between 30 and 40 male patients go during the day to the women's department to work in various capacities, and they have their midday meal in the chapel dining-room of the women's department, returning at night to their respective wards in the male department.

The following table shows how far the epidemic was confined to the women's department:

Women's department, men ill	5
Women ill	23
Men's department, men ill	2
Women ill	0

With two exceptions, then, the epidemic was confined to the women's department.

The first indication of a disease of a typhoidal nature was obtained by the discovery of a positive Widal reaction in a female patient, No. 8276, assisting in the serving-room of the nurses' quarters. From the blood of this patient actively motile organisms were recovered. One of the male patients, No. 6227, who was an assistant in the preparation of food and had for one of his duties the turning of the meat machine, was found to have fever (101°); from this patient a Bacillus paratyphosus alpha was cultivated from the blood. Upon the discovery of these facts concerning the two patients just mentioned, the patients were removed from the kitchen and dining room and a variety of precautions were observed (Pasteurization of milk, washing of dishes in formaldehyde solution, disinfection of toilet rooms and floors, and systematic observation of temperature in patients and employees. The chef (Case L) later fell sick.

Six months after the epidemic, organisms of the Colon group and the Paratyphoid group were isolated from chopped meat which had been

* This and the four following papers represent Contributions of the State Board of Insanity, Numbers 26-30 (1914.6-1914.10). The papers were presented in substance at the meeting of the Boston Society of Medical Sciences held at the Psychopathic Hospital, April 28, 1914. A preliminary report had been made at the April, 1911, meeting of the Assistant Physicians' Association of the State hospitals of Massachusetts, at the Boston State Hospital. (*Bibliographical Note.*—The previous contribution was by E. E. Southard, entitled "On the Topographical Distribution of Cortex Lesions and Anomalies in Dementia Precox, with Some Account of Their Functional Significance," No. 1914.5 [to be published in the *American Journal of Insanity*, October, 1914].)

sent to the pathological laboratory for the purpose of making culture media. Thus stated, without cultural facts, it may be thought that the epidemic can be ascribed to infection of meat. The distribution of the bacilli in meat or other food in the women's department may well have been effected by the male patient, No. 6227. It is possible also, of course, that the patient himself obtained the disease from previously infected meat.

Although, as just stated, it is probable that the source of the epidemic was infected meat, it was necessary in working up the data of the epidemic to consider various other sources of infection and methods of spread. The first in order is perhaps the plumbing. The water supply is from the Metropolitan system mains, and connection with the city sewage is maintained. There had been overflowing of toilets in certain basements and near the kitchen at times. No definite source of infection could be attributed to these toilets. They were immediately overhauled and set in good order.

In the past, numerous epidemics of various descriptions in various parts of the world have been attributed to conditions in the ground water. There had been a general overturning of earth at the hospital for the erection of a new laundry building and for the construction of a large ditch. Investigation could not reveal any connection between these operations and the epidemic.

The ice pond required consideration. This pond is between one-half and one acre in extent somewhat below the level of Harvard and Austin streets. Manure has an opportunity to infect the pond, and ice is regularly cut from the pond to store in the ice-house and in a similar structure near the kitchen at the main department, from which supplies are daily given out. The use of this ice was restricted immediately after the first cases appeared, and bacteriological examination was made of random samples by Dr. B. L. Arms and Miss E. Marion Wade of the City Board of Health. They reported these samples to be negative for the typhoid group. It is less probable that the ice from the ice pond was the start of this epidemic than that the maintenance of infection of meat in the refrigerator, infected otherwise, should be responsible.

As for garbage and rubbish, they are handled under proper conditions by feeding to animals and by burning of dry materials.

Climatic conditions had to be considered. Dust from dumping ground for the town of Dorchester, adjacent to the hospital, as well as from ditching operations and laundry building excavation, laying open the earth about a stagnant pond containing an overflow of laundry water, was in evidence, and the wind during October blew in the proper direction to secure the blowing of this dust to the kitchen from the different sources.

It was also noted on all sides that flies lasted longer in the autumn of 1910 than usual; screening is for the most part adequate except for the main kitchen. There is no direct evidence connecting the flies with the source or spread of the epidemic, however.

With respect to extra-mural infection, it must be remembered that at this time practically every nurse and employee had returned from a two-weeks' vacation and that the mobility of nursing and employees' population is habitually extreme.

As for carriers, the fact that the chief engineer had been a victim of so-called typhoid fever in 1871-72 and still had certain symptoms of an abdominal origin had to be considered. This patient, however, was a victim of paratyphoid fever in this epidemic. The Widal reaction for bacillus typhosus in this patient was negative, nor were organisms of the colon typhoid group grown from urine, feces or blood.

These investigations seem to leave as the best hypotheses for the origin and spread of this epidemic the statement made above concerning the infection of female patient 8276 followed by the infection of a male patient (6027) who had to handle the meat. The chef and the baker later fell sick, whereupon the epidemic was established.

The subsequent bacteriological examination of meat from the refrigerators seems to point to the possibility of persistent infection of this meat, although of course it is possible that more recently purchased meat might have been infected. It seems that meat is not, as a rule, preserved in the refrigerators for a period as long as six months. It is, therefore, probable that infection in the refrigerators, if it persisted, was local.

Below is given the autopsy protocol of Case 9586, which died some years after the epidemic, on the 26th of April, 1913. The protocol is presented because of the rarity of autopsy protocols in paratyphoid fever. The only indication of lesion in the body which can be safely or with probability attributed to the paratyphoid fever is a thickening of the ileum, but neither the jejunum nor the colon showed any gross signs. The gall-bladder failed to yield paratyphoid bacilli, as did also various other loci tested.

The organisms found were: heart's blood, micrococcus jongii; gall-bladder, streptococcus septicus; lumbar lymph nodes, bacillus coli communis.

CASE No. 9586. Autopsy No. 1913-26. April 26. 1913. Head, trunk and cord: M. M. Canavan. H.P.M. 6. Age, 38 years.

Body of an obese white woman 138 c.m. in length. Skin over trunk waxen white in color, over face and neck deeply blue red, which turns white on pressure to quickly return to blue on release of it; over the forearm occur small petechial red spots, and over the entire right leg and foot blue-red epidermis is seen, which separates from the corium, revealing a somewhat mottled subcutaneous shadow.

Both legs and abdomen and back muscles show

marked pitting on pressure. There is a small decubitus over sacrum. No palpable lymph nodes. The hands are disproportionately small. Pupils, 0.6 c.m. in diameter and central and equal. The ophthalmoscopic examination at this time shows both nerve heads of dim outline; the vessels emerging from the right fundus are irregular in appearance and only here and there are visible; the veins from the left fundus are brilliant and wider than their fellows or the normal. Abdomen distended.

Ventral Section. Panniculus edematous and pale yellow in color. Measures 0.6 c.m. Muscles pale red in color. Peritoneal cavity contains much fluid, pale yellow. The intestines float in a great collection of this fluid. Spleen adherent to diaphragm. Appendix bound down, 6 c.m. in length. Ovaries and tubes adherent to the rectum and each other. No mesenteric lymph nodes palpable. Liver 8 c.m., stomach 18 c.m. below ensiform. Diaphragm arches to 4th rib on the right, 5th rib on left.

Thorax. Mammary vessels sclerosed. Pleuric cavities filled with fluid. Pericardial sac tense from great excess of contained fluid.

Heart. Distended. Weight, 415 grams. Epicardium scant of fat. Coronaries not notable. A patch of fibrin adheres to the apex of the heart. The heart muscle is red with grey streaks fairly firm. At the apex the wall is very thin. The endocardium is grey but no vegetations or thickenings occur; the free edges of the mitral slightly curled under, and the uncut valve admits four fingers. Measurements: T.V., 10.0 c.m. M.V., 12.0 c.m. P.V., 7.0 c.m. A.V., 7.0 c.m. L.V., 0.4-1-3 c.m. R.V., 0.3-1.0 c.m. All four chambers contain large quantities of cruor clot. Arch of aorta free from sclerosis.

Lungs. Combined weight, 631 grams. Nothing of note except two small infarcts measuring 2 c.m. each in the base of each lung. Peribronchial lymph nodes not remarkable.

Organs of the Neck. Thyroid congested.

Aorta. Thin and elastic throughout. The right lumbar lymph nodes (draining right leg area) are edematous and large. Sacral lymph-nodes (under bifurcation aorta) not notable.

Abdomen. Spleen,—weight (with attached piece of diaphragm), 280 grams. 12 x 8 x 4 c.m. in measurement. Capsule thickened over superior surface and the hilus is adherent to stomach wall. Section shows much congestion; pulp firm, trabeculae not notable, malpighian bodies not numerous.

Adrenals. Very firm; otherwise not notable.

Kidneys. Weight, 340 grams. Perirenal fat edematous. Capsule of left not thickened nor adherent, right kidney capsule is adherent and thick. Cortex of left measures 0.8 c.m., of right, 0.4 c.m.-0.6 c.m. Left kidney drips blood on section, no cysts; the right contains less blood, cysts occur. Pelves negative.

Liver. Weight, 1530 grams. Edges blunt. Color deep purple blue. Section shows marked mottling from venous engorgement. Gall bladder distended. Contains no stones but is filled with grumous black fluid. The wall of the gall-bladder is thick (resisted knife); no puriform content.

Pancreas. Pink; otherwise nothing of note.

Gastro-Intestinal Tract. Stomach dilated, no rugae. The gastric mucosa everywhere seat of petechial hemorrhages and free hemorrhage is shown in mucus. Pylorus small. The duodenum and jejunum show congestion. The ileum is fairly free from congestion, but shows a slight thickening. No indication of ulceration, old or new. Colon free except for injection. (Paratyphoid in November, 1910).

Genito-Urinary Tract. Bladder injected. Vagina, short and grey: cervix blue, os patent with clear tenacious fluid exuding from it. Uterine body firm; contains two white fibromyomata, encroaching on the cavity of the uterus. Fallopian tubes tortuous and distended, ending about ovaries, to which and the rectum they are attached. Section of the right ovary shows fibrous change; of the left, many corpora lutea, no corpus hemorrhagicum.

Head. Hair fine, brown and fairly abundant. Scalp firm, considerable blood escapes on cutting it. Periosteum not remarkable. Skull thick, though plentifully supplied with diploe. Frontal, 0.4 c.m.-1.3 c.m.; temporal, 0.4 c.m.-0.8 c.m.; occipital, 0.7 c.m. An irregular endostosis of inner table of frontal bone has locally absorbed the dura mater. Pacchionian granulations in eight areas pierce the inner table of the skull, occasionally almost perforating the outer table. The dura is otherwise slightly thickened and the pia slightly over the vertex. There is a subpial hemorrhage over the right prefrontal pole and the depression of the pituitary body contains blood. The consistence of the cerebrum is unequal, the right parietal slightly softened. Considerable hemorrhage free at the base of brain. Vessels not sclerosed. The pons is minutely honeycombed with vacuoles (arteriosclerotic?). Olivary bodies firm. Convolutions show nothing of note. Optic nerve sheaths show considerable swelling near bulb, otherwise nothing of note. Ears free. The Gasserian ganglions and pituitary negative. Cord slightly soft and shows slight subdural hemorrhage over left lower cervical region. Brain weight, 1120 grams.

Anatomical Diagnoses. Cause of death and acute lesions: Cardiac; pulmonary infarctions; subpial and subcutaneous hemorrhages, acute fibrinous pericarditis; hemorrhagic gastroenteritis; sacral decubitus; mitral insufficiency; dilatation and hypertrophy of heart; chronic interstitial myocarditis; chronic passive congestion of liver, stomach, and intestines; general anasarca; interstitial nephritis; internal mammary arteriosclerosis; chronic perisplenitis, chronic pericholecystitis; chronic ileitis (slight thickening); gastroptosis; lumbar lymphnoditis; chronic fibrous oöphoritis and salpingitis; fibromyomata of uterus; calvarium thick, frontal endostosis; excessive arachnoidal villi; adherent dura; chronic fibrous leptomeningitis (vertex, slight); right parietal region of brain soft; spinal cord slightly soft (6 hours post-mortem); hydrops nervi optici.

Cultures from gall-bladder, retroperitoneal lymph nodes, heart's blood, negative for organisms of colon-typhoid group.

Microscopic examination of the ileum showed that the gross thickening was due largely, if not entirely, to edema of the mucosa. No convincing evidence of chronic changes was found (some hyperlymphocytosis?).

II.

CLINICAL FEATURES OF AN OUTBREAK OF PARATYPHOID FEVER.

BY MARY E. GILL-NOBLE, M.D., BOSTON.

The clinical course of the disease in the series of cases here presented was so irregular, and the

symptoms so varied in the different individuals, that we have thought best to append a table in which each case can be followed separately and the frequency of occurrence of certain symptoms seen at a glance.

The cases are listed in the order of their occurrence, the letters of the alphabet referring to nurses and other employees, while the patients are listed under their case record numbers.

No. 8276 is a female patient who was employed in the serving-room connected with the nurses dining-room and who was suspected of being the original focus of the epidemic, although she had absolutely no clinical symptoms at any time.

No. 6227 was a male patient employed in preparing meat and other food in the main kitchen.

Cases U and Y had had one and three inoculations, respectively, of typhoid vaccine.

It will be seen by reference to the table that the classical symptoms of typhoid, with the exception of epistaxis, were conspicuously absent. Several of the cases were so atypical or presented such a negative picture that they would not have caused any suspicion of a typhoid-like disease if they had not occurred during an epidemic.

The second nurse to be taken ill, however, Case B., was the one who presented throughout the most striking resemblance to true typhoid. For this reason blood was immediately tested (City Board of Health) for Widal reactions. All cases were handled as possibly typhoid, with precautions as to isolation, disinfection, diet, and treatment.

For eleven days all the reports from the Widal reactions were negative, as were the blood cultures taken from the ear.

Case B developed such marked chills, with high fever and profuse sweating, occurring on the third, fifth, and ninth days of her illness, that repeated examinations were made for a malarial organism. Also during this time four of the cases had mild sore throat, and one a severe bronchitis, which in the absence of positive typhoid evidence suggested epidemic influenza.

It will be noted that the leucocyte counts, which in most cases were taken more than once, were not diagnostic, being too high for a leucopenia, except in Case B, which was 2400.

On Oct. 30, eleven days after the first case was taken ill, two positive Widals were returned from the Board of Health, and immediately six cases were sent to the Boston City Hospital, since our own accommodations for infectious cases were very limited. Four were sent later, making ten in all.

Seventeen cases altogether were taken care of in the Boston State Hospital. Two men employees who lived outside were cared for in their homes by outside physicians.

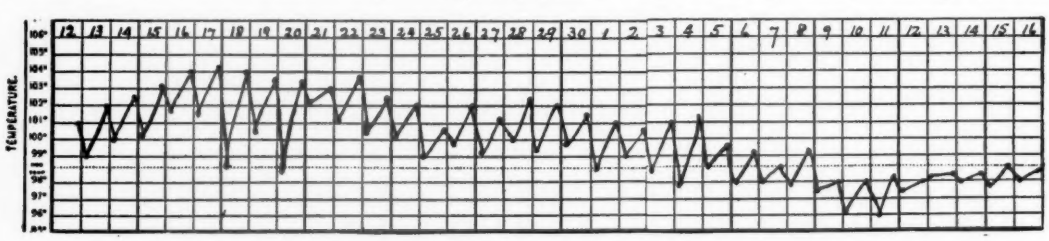
No organisms of the colon-typhoid group were cultivated from the blood from the ear in 25 cases, until Dec. 3, 1910, fifty-five days after the beginning of the epidemic, when a B. paratyphosus (alpha) was obtained from No. 6227 and an allied organism from No. 8276 and Case J.

Nov. 11, four blood cultures were taken from the arm of the cases M, S, U, and No. 9586, and all of these yielded the organism closely resembling B. paratyphosus (alpha).

GENERAL SYMPTOMS.

The onset in most cases was rather sudden, the prodromal symptoms seldom dating back more than a week from the day of discovery, and sometimes only a few days. Late in the epidemic, when it became a routine measure to take a daily evening temperature of all employees, several cases were discovered to have a slight rise to 99-100° without other symptoms. These were isolated and proved to be mild cases of the prevailing disease. A few of the severe cases had a more gradual onset and more marked symptoms. The duration varied from eleven days (Case P, in which fairly representative symptoms were present) to five weeks. Two had a relapse and were in bed nine weeks, and another ran a continuous temperature for eight weeks and was in bed ten weeks with a long, slow convalescence following. This case recovered after a post-convalescent depression and returned to active service to die two years later of advanced tubercular involvement of the peritoneum.

The clinical charts followed no special law, there being almost as many types as there were cases. Only one showed the gradual steplike ascent peculiar to typhoid (Case V—chart reproduced). In several the evening temperature preserved the usual typhoid outline with deep remissions to or below normal either during the whole disease or throughout the first week. Others hovered around normal from the beginning, and two or three started in with the highest temperature the first two days, followed by a gradual and progressive descent to normal. The pulse was relatively slow, averaging from 70-



CASE V. Temperature curve at the beginning suggestive of typhoid, but later dropping to normal, and then following a variable course.

108. The temperature and pulse given on the chart represents the highest point reached, and was usually observed only once or twice during the course of the disease.

The highest temperature of the twenty-four hours was usually registered between 10 p.m. and 2 a.m. The tendency in all cases was for the temperature to return to normal by lysis, but in several there was a sudden drop to or below normal, followed by an exacerbation to 101° or 102°, and then a more gradual and progressive descent. The condition of the patient at the time of this remission was suggestive of a crisis and a very noticeable improvement dated from that time.

Symptoms of the first week: Quite marked chills were noticed during the onset by many patients, and several had repeated chills during the first week. Those of Case B, already referred to, were very severe and unusual. Sweating was also quite a common symptom, requiring for relief a sponge bath and change of bed clothes.

Headache was the most constant, and persisted in some cases more than a week, but in the majority disappeared the third or fourth, day, returning a few days longer with the evening fever.

Four had tenderness and rigidity of the posterior muscles of the neck. Cases B and M* complained bitterly of this, the latter obtaining no relief until the end of the second week.

There was very little insomnia. It was the rule for the patients to sleep well and to need very little attention at night.

Slight stupor was noticed in five cases, and mental dullness was present in the majority while the headache lasted; but even then they were remarkably bright and serene in the morning.

Two had slight difficulty in hearing for a day or two.

Twelve had markedly dilated pupils, sluggish in their reaction to light.

There was no delirium among those observed by us, with the exception of Case M, who wandered a little in her conversation one afternoon. Case B was somewhat delirious several days at the Boston City Hospital.

Pain in the back and limbs was general and was a striking feature, being more suggestive of the pain of influenza and tonsillitis than of typhoid.

Epistaxis occurred in nearly half the cases, but in some did not appear until the end of the week.

Sore throat existed in ten cases as a diffuse redness of the whole pharynx and fauces. Throat cultures were taken in all and were negative for the Klebs-Loeffler bacillus.

Bronchitis of a mild form occurred in six cases and was pronounced in one.

Rose spots were not found in any of the twenty-one cases we observed. Eruptions occurred in five cases, three being a diffuse papular eruption appearing in one crop and disappearing altogether in less than forty-eight hours, and the other two were an erythema of the face and neck, lasting about the same period.

The tongue as a rule showed white creamy coat, which persisted until the fever subsided and cleared gradually, beginning at the edges. Five had a brown furred tongue, but there were no fissures. There was very little tendency to the collection of sordes.

The spleen was enlarged to percussion in about one-third of the cases. It was palpable in only three observed by us.

Nausea and vomiting occurred in two cases during the first week and in one was persistent and troublesome for several days.

Diarrhea of the pea soup variety was observed for a day or two in four cases, and one patient had a slight attack several days before coming under observation.

Constipation prevailed and in two cases was so obstinate and troublesome as to cause some apprehension, repeated enemata and cathartics having very little effect.

The second week of the disease was an extremely comfortable period for the majority of these patients. Mentally they were noticeably bright and cheerful; the constipation was under control; they were hungry and chafed at their restricted diet and enforced stay in bed. They felt so well that it was difficult to convince them of the wisdom of the recumbent position.

During this week five cases recovered, having been in bed altogether less than fourteen days, and of those who continued to run a temperature there was very little to note except an exhaustion out of all proportion to their symptoms and the severity of the fever.

A few had more severe symptoms.

Abdominal pain: It will be seen by the chart that only five cases had any abdominal pain whatever; one of these was very slight and another only complained for a few hours. Case M suffered extremely from the pain caused by enemata and cathartics, but was perfectly comfortable after her bowels had moved. She had stupes applied on one occasion.

Three had some flatulence which, however, was easily relieved.

Several others complained of tenderness of the abdomen on being moved or handled.

Five suffered from retention of urine on several occasions, which, however, yielded to hot applications.

Two had a sudden attack of cardiac pain with syncope in the second week. One of these was subject to neuralgic pain in this region. A third had pain and distress in the precordium throughout the first two weeks, but during a relapse of several weeks he was absolutely free from it.

During the third week only three cases had pronounced symptoms, and it was this group which appeared more like typhoid. The re-

* For Case M, see Appendix.

	Occupation.	Date of Onset.	Dur. of Prodrom.	Dur. of Illness.	Leucocyte Count.	Agglutination: B. Typh.	Agglutination: Para	Agglutination: B. S. H.	Highest Temp.	Highest Pulse.	Epistaxis.	Sore Throat.	Bronchitis.
A.	Nurse	Oct. 19	1 wk.	9 wks.	7,200	+			103°	120	+	+	+
B.	Nurse	24	2 wks.	5 wks.	2,400	+			103	130	+	+	+
C.	Nurse	25	1 wk.	4 wks.	7,600				102	100	+		
D.	Nurse	26	2 wks.	4 wks.	8,000				104	128	+		
E.	Nurse	27	2 wks.	5 wks.	8,200				104	130			+
F.	Nurse	27	2 wks.	5 wks.	6,400				103.6				
G.	Nurse	27	1 wk.	4 wks.	4,800				103				
H.	Porter	29	1 wk.	8 wks.	6,700				104	120		+	
I.	Asst. Cook	31	1 wk.	3 wks.	4,200				104	120		+	
J.	Nurse	31	1 wk.	3 wks.	7,200			+	103		+	+	
K.	Porter	Nov. 1	3 d.		5,400				101	115		+	
L.	Cook	2	1 wk.	6 wks.	6,000				103.3		+		
No. 9586	Patient	2	1 wk.	5 wks.	7,000			+	104	138			
M.	Nurse	2	4 d.	7 wks.	6,000	+	+	+	104.4	120			
N.	Engineer	3	1 d.	6 wks.	4,200				104				
O.	Nurse	4	3 d.	12 d.	10,800 6,400				101	110		+	
P.	Nurse	5	5 d.	11 d.	5,000				101	104		+	
No. 6227	Patient	5	?	5 wks.	5,400		+				+		
Q.	Laundress	7	1 wk.	3 wks.	7,200				103.4	100	+	+	
R.	Nurse	8	1 wk.	9 d.	3,800				100.6	110			
S.	Nurse	8	2 wks.	6 wks.	7,600			+	103.8	118	+		
T.	Nurse	8	1 wk.	13 d.	6,800				103	118			
U.	Nurse	8	2 wks.	16 d.	5,800			+	103	120	+		
V.	Nurse	11	3 d.	4 wks.	5,200				104	130	+		
W.	Nurse	13	1 wk.	13 d.	3,200				102	108		+	
No. 8652	Patient	14	1 wk.	5 wks.	11,200 7,200	+	+		101.5	100	+		+
X.	Baker	17	1 wk.	4 wks.	4,800				102.8	115			
Y.	Nurse	30	2 wks.	10 wks.	5,200				101.8	108	+		+
No. 7779	Patient	Jan. 28	3 d.	4 wks.	10,200				102	108			
No. 8276	Patient							+	No clinical symptoms.				

mainder continued to run a somewhat irregular temperature with very little else of importance.

There were no instances of perforation or of hemorrhage. It is interesting to note that the menstrual function, so often disturbed in typhoid, was only suspended in one case, though rendered irregular in one or two more. Three cases following an attack of nausea and vomiting and some abdominal pain, had a relapse. In two of these the relapse was much more serious than the original attack. Case A was one of these, and up to this time, the twenty-ninth day, her only symptoms had been headache, slight constipation and moderate fever.

The last nurse to be taken ill ran a temperature for eight weeks, reaching 102° at night for six weeks of that time. The patient had no other symptoms except epistaxis, slight headache and constipation and was considered a very mild case, but on attempting to sit up she showed marked exhaustion, had several attacks of syncope, and was in a condition of mental depression for several weeks. She is completely recovered and on duty after a month's vacation.

COMPLICATIONS.

Were not severe. One patient, No. 9586, had lobar pneumonia; one, No. 6227, a very severe acute parenchymatous nephritis.

SEQUELAE.

With one or two exceptions all complained of stiffness of the knee and ankle joints after getting up, and one nurse after going home walked too far the first day and had an acute swelling of one ankle, which was painful and troublesome. Several of the nurses who were ill still complain at the date of writing of an unusual tendency to fatigue, and shortness of breath on going up and down stairs.

TREATMENT.

Sponge baths were given once in three hours whenever the temperature rose above 102.5.° It was found very early that tepid baths were just as effectual in reducing the temperature as cold ones and were not dreaded by the patients.* Intestinal and urinary antiseptics were used to some extent. Enemata e. o. d. and sometimes cathartics for the relief of constipation. Very few hypnotics were needed. Aspirin was used somewhat for the headache. They were kept on a diet of liquids and milk, malted milk, beef tea, oyster and other broths, with occasional soft solids, such as cream toast, jellies, simple puddings, etc., and bread and potato with gravy for the milder cases.

The usual disinfection of bed clothing and

* Stimulants were employed in about half the cases, especially those who were ill longer than three weeks.

Chills.	Sweating.	Rash.	Coated Tongue.	Nausea and Vomiting.	Abd. Pain.	Abd. Tenderness.	Tympanites.	Diarrhea.	Constipation.	Enlarged Spleen.	Headache.	Stupor.	Delirium.	Dil. Pupils.	Deafness.	Stiff Neck.	Pain in Back.	Urine, Retention of	Praecord. Pain.	Stiff Joints.
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excreta was practised rigidly from the start. Urine and feces were examined bacteriologically in many cases, with uniformly negative results.

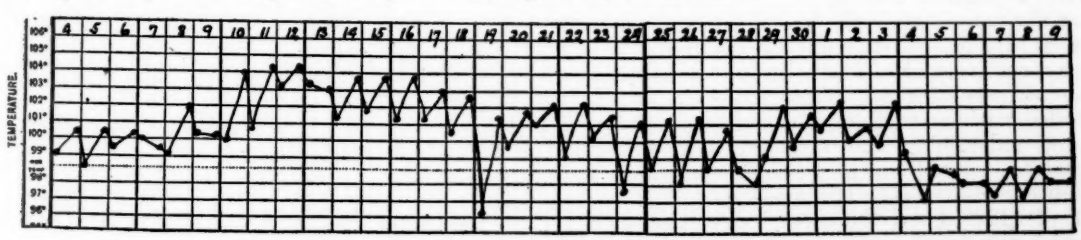
APPENDIX.

CASE M. Nurse, age 21. This was the most severe although not of the greatest duration of the cases remaining in the Boston State Hospital throughout her illness. She is reported in detail because it might have been more easily mistaken for true typhoid than any other under our immediate observation, and yet she was one of the two whose blood specimens gave a positive paratyphoid as well as typhoid reaction at the Board of Health Laboratory, and she was also one of the five to have blood cultures taken from the arm in which was found the motile bacillus which Dr. Richards has described.

She was taken ill Nov. 2, 1910 about the middle of the epidemic, after only four days of feeling below par, and was on duty until ordered to bed because of high temperature. Her leucocyte count taken the second day of the disease, was 6,000. Her clinical chart is one of the four here reproduced.

During the first five days the prominent symptoms were chilliness, afternoon headache accompanying the rise of temperature, constipation, and pain and rigidity of the neck, chiefly of the left side. No epistaxis, no eruption. Her mental state was remarkably bright and clear. She slept six to eight hours a night and awoke so much refreshed in the morning that she would not believe that she had contracted the prevalent disease, and repeatedly asked if she could go on duty.

After the fifth day her temperature began to be higher in the morning, and from this time on she appeared very ill. She was troubled continually with the most obstinate constipation and suffered considerable discomfort from the necessary enemata and cathartics, but this always subsided when the bowels were relieved. On the eleventh day there



CASE M. Temperature curve in the most severe case paratyphoid fever. Note irregularity. Note characteristic drop to subnormal, 16th day (this drop occurs, as a rule, a little earlier, from 10th to 14th day). The pulse also drops at the same time. Subjective symptoms are most severe when the temperature and pulse drop. Case M also showed a species of recrudescence 10 days after the drop in temperature followed 6 days later by a second drop in temperature; but this second drop had no subsequent reaction by elevation of temperature.

was some distention and turpentine stupes were applied. This was the only time that any treatment for abdominal pain was necessary.

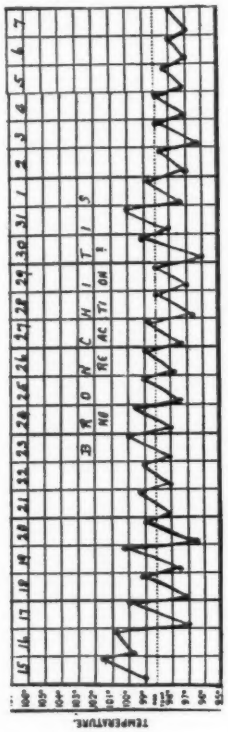
At the end of the second week she had lost much weight and showed marked exhaustion, appearing listless and depressed. She was still suffering from headache and the pain in her neck, of which she almost constantly complained. At this time she suffered on several occasions from urinary retention and obtained relief from hot applications.

On the fifteenth day she was delirious for a few hours. Her temperature was reaching 104° in the evening, she was having sponge baths every three hours, stimulants and salt solution by the Murphy drip and there was considerable anxiety concerning her condition. On the seventeenth day her temperature dropped suddenly to 96.2°, and although it rose to 102.8° in the evening throughout the two weeks following, this drop marked a change for the better. The only event of importance during the fourth week was an attack of syncope following an attempt to sit up on the bed pan; she rallied quickly. On the third day of her normal evening temperature, the thirty-fourth of her illness, she sat up fifteen minutes. From this time on until her discharge from isolation two weeks later, she made a progressive and uneventful recovery. The only sequelae were a slight stiffness of the knees and ankle joints for a week and dyspnea on exertion.

CASE 8652. This case is presented in contrast to Case M, as running a mild course, although showing a positive agglutination test for bacillus typhosus and atypical for bacillus paratyphosus alpha.

The patient was admitted for the third time Sept. 26, 1907, the mental diagnosis being dementia precox, paranoid form. Nothing in the early history of the case is of importance. During her illness, as is frequently observed in similar mental states, she was quiet and coöperative, contrasting with active persecutory ideas to which she usually reacted.

The onset was at the end of the epidemic and after a week's irregular eating. There were no other prodromes, the first symptoms being nausea and vomiting in the morning, and slight nosebleed at night, with a temperature of 102.6°. For the first time, she complained of headache and general malaise. The following morning she had another slight nosebleed. On the third day of the disease, a diffuse papular eruption appeared over the abdomen, thorax, back, arms and thighs. There were about 125 in number,—diffuse red, fading the following day, and disappearing entirely at the end of three days, with no reappearance. The temperature during the entire course of weeks went to 100° or above only twice, ranging from 96.8° to 98.8°; the pulse-rate was correspondingly low, averaging 65. At no time was it dicrotic. Her respirations did not vary greatly, being about 20, and although during the second week she had a pronounced bronchitis, it did not change either the temperature, pulse or respirations. There were no abdominal symptoms, excepting constipation, which was easily controlled without producing diarrhea. The spleen was not enlarged. The most constant condition was white, coated tongue, which persisted well through convalescence. The blood showed leucocyte count of 11200 upon the second day, and at that time an agglutination test of a 1 to 50 dilution for bacillus-typhosus, and for bacillus paratyphosus alpha an atypical reaction. On the fourth, the leucocyte count was 7200 and the serum agglutinated bacillus typhosus was atypical for bacillus paratyphosus alpha. On the 25th day, the diet was gradually increased; she was up on the 35th day and placed on house diet.



CASE 8652 (patient). Evening rise. Temperature over 100° but twice. Intercurrent (?) bronchitis failed to affect temperature.

III.

NOTES ON THE BLOOD CELL PICTURE IN PARATYPHOID FEVER AND AFTER VACCINATION WITH BACILLUS TYPHOSUS.

BY MYRTELLE M. CANAVAN, M.D., BOSTON.

That there are specific infectious diseases which even at their height produce no hyperleucocytosis, differentiating them broadly from (*a*) certain other infections, and from (*b*) certain inflammations which demand surgical intervention, is accepted: Those which at their height do not send the leucocytes above their normal limits are: malaria, measles, typhoid fever, tuberculosis (uncomplicated), influenza, mumps, to which may be added bacillary dysentery[1] and paratyphoid fever.

If one could rule out in a given case malaria, tuberculosis, measles, influenza, mumps and bacillary dysentery, and were facing a differential diagnosis between typhoid and paratyphoid fever, the present work shows that the total count of leucocytes would be distinctly helpful. In typhoid fever a hypoleucocytosis (below 2000-4000 per cu. m.m.) is significant, combined with absence of eosinophiles. In this series of sixteen cases of paratyphoid fever the leucocytes were rarely below 4000 per cu. m.m. and the eosinophiles (found in differential counting of not less than 1000 cells) were present in a percentage of 0.31% (average of five cases in

[1] M. M. Canavan: Blood Cell Picture in Bacillary Dysentery, BOSTON MED. AND SURG. JOUR., Vol. clxi, No. 20, p. 62, Nov. 11, 1909.

which the paratyphoid organism was recovered by blood cultures) and 0.8% in an average of eleven cases without culture (clinically certain epidemic cases).

AVERAGING THE CASES BY DAYS:

The first day showed...0.3 % eosinophiles (2 cases)
The second day showed.1.78% eosinophiles (4 cases)
The third day showed...0.29% eosinophiles (3 cases)
The fourth day showed.0.6 % eosinophiles (3 cases)
The six to tenth day showed .....0.52% eosinophiles (3 cases)
The 20th to 30th day showed .....0.6 % eosinophiles (2 cases)

It can be seen readily that the findings of the third day in this series most closely simulate typhoid hypo-eosinophilia. At the same time the leucocyte count rarely falls below 4000 (3800 in one instance on the third day, 3200 in one instance on the fourth day, these being in fact the only exceptions to the "over-4000" rule).

But, although paratyphoid fever does not show the characteristic typhoid hypoleucocytosis, paratyphoid fever cannot be said to produce hyperleucocytosis, since the counts never ranged over 8000. The leucocytes in paratyphoid fever in the present epidemic are consequently well within the normal range.

A chart shows the basis of these statements:—

The chart shows the negative findings in other forms of cells. As a single procedure the leucocyte counting gives a suggestive lead in prognosis and diagnosis.

At the suggestion of Dr. Southard an attempt was made to count the leucocytes before and after antityphoid inoculations to see if an experimental cell picture resembling the changes in the disease of typhoid fever could be so produced. Too few cases were carried through enough counts to be conclusive, but there was an indication in one case (S. W. C.) in that the leucocytes rose from mid-normal (6600) to higher normal (8000) in two hours after the first inoculation, and in fifteen hours to 10,000 with a drop in eosinophiles from 0.78% before inoculation to 0.72% two hours later, and 0.30% in fifteen,—imitating typhoid somewhat in the first days of the invasion (Table I).

In another case (S. E. V.) the leucocytes rose from 8400 per cu. c.m. to 9500 in two hours after the inoculation and were 8600 fourteen hours later; eosinophiles were also in evidence.

In another (M. E. G.) there was a rise after the first inoculation from 3600 to 4200 in twenty-four hours; eosinophiles also seen.

The fourth case (H. M. N.) presented a slight rise from 4400 per cu. m.m. to 6400 in four hours after inoculation, 3400 after eighteen hours, with an actual increase in eosinophiles from 2.4 to 3.9 (Table II).

The fifth case (M.C.) presented a slight rise in leucocytes from 5800 before inoculation to 7200 two hours after, with return to pre-inocu-

BLOOD-CELL PICTURE IN PARATYPHOID FEVER.

DIFFERENTIAL COUNT OF LEUCOCYTES.

Case.	Day.	Leucocytes.	Poly.		S. L.		L. L.		Trans.		Eosin.		Mast.	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Q.	1st	7200	800	69.68	242	21.20	58	5.05	44	3.70	2	0.10	2	0.10
P.	1st	5000	430	43.47	385	38.12	109	11.02	57	5.7	6	0.6	2	0.2
T.	2d	6400	500	49.65	315	31.34	60	5.97	75	7.46	55	5.4	..	...
*J.	2d	8000	700	63.56	253	22.96	80	7.2	48	4.3	2	0.18	..	...
*6227	2d	5400	318	57.49	145	26.11	50	9.0	41	7.4	..	...	..	...
*M.	2d	7000	800	66.21	285	23.72	85	7.05	30	2.4	..	...	5	0.4
R.	3d	3800	1000	76.27	208	15.77	64	4.87	32	2.5	..	...	2	0.1
O.	3d	6400	700	61.77	265	23.47	89	7.84	70	6.17	8	0.70	1	0.09
*S.	3d	7600	1000	65.2	325	21.2	138	9.0+	66	4.3+	3	.19+	3	0.19+
V.	4th	5200	600	58.3	270	26.2	90	8.7	63	6.1	1	0.09	5	0.48
W.	4th	3200	600	47.2+	402	31.6	161	12.7	92	7.2	3	.2	13	1.0
Y.	4th	5200	600	53.6+	315	28.1	100	8.9	85	7.6	11	0.9	7	0.6
†8652	4th	7200	3960	55.	1621	22.52	960	13.34	577	7.1	7.2	0.1	36	0.5
9	6th	6200	500	44.63	270	24.15	150	13.41	191	16.10	7-	0.60	6	0.50
*6227	8th	....	793	69.99	179	14.09	57	5.02	98	8.6	6	0.5	..	...
X.	10th	4800	700	64.3	180	16.5	95	08.7	108	09.9	..	...	4	0.30
*U.	24th	5800	700	60.13	302	25.60	92	7.90	54	4.60	14	1.20	2	0.10
A.	29th	7200	453	54.38+	261	31.3+	82	9.80+	36	4.30+	..	...	1	0.10+

* Motile bacillus recovered from the blood.
† 1709 cells counted.

lation number of 5800 per cu.m.m. in four hours, and an excursion of eosinophiles from 0.30-1.30-1.10% for the same number of counts (Table III).

All five cases presented, then, a slight oscillation upward in numbers of leucocytes after the first inoculation, but only one (S. W. C.) showed a tendency to disappearance of eosinophiles. The number of leucocytes differentially counted was high,—1000-5000 in each case.

TABLE I.—S. W. C.

Nov. 13, 1910, 7 P.M.
Before inoculation.
Leucocytes 6600
Polynuclears 62.80%
Small lymphocytes 22.05%
Large lymphocytes 4.40%
Transitionals 0.00%
Eosinophiles 0.78%
Inoculated with 0.12 cc. emulsion of typhoid bacilli killed at 53°, injected sub-cutaneously at insertion of left deltoid muscle.

Two hours later (after first inoculation).
Leucocytes 8000
Polynuclears 54.30%
Small lymphocytes 28.50%
Large lymphocytes 9.00%
Transitionals 7.20%
Eosinophiles 0.72%
Arm painful.

Nov. 14, 1910. 9.45 A.M.
Leucocytes 10,000
Polynuclears 81.00%
Small lymphocytes 7.50%
Large lymphocytes 5.40%
Transitionals 5.40%
Eosinophiles 0.30%
Dec. 4, 1910—Widal atypical.

TABLE II.—H. M. N.

Before inoculation:
Leucocytes 4400
Polynuclears 64.2%
Small lymphocytes 21.0%
Large lymphocytes 4.8%
Transitionals 6.7%
Eosinophiles 2.4%
Nov. 12, 1910, 5 P.M. 0.12 cc. emulsion of typhoid bacilli killed at 53°, injected sub-cutaneously at insertion of left deltoid muscle.

Four hours after inoculation:
Leucocytes 6400
Polynuclears 61.07%
Small lymphocytes 16.60%
Large lymphocytes 9.00%
Transitionals 7.60%
Eosinophiles 4.10%

11 A.M., Nov. 13, 1910. Arm painful.
Leucocytes 3400
Polynuclears .....43.9 %
Small lymphocytes .....37.8 %
Large lymphocytes .....11.6 %
Transitionals ..... 3.0 %
Eosinophiles ..... 3.9 %
5 P.M. Nov. 17, 1910. Inoculated with 0.25 cc.
6 hours later, temperature 101°.
Headache lasting until 4 P.M. on the 18th.
Polynuclears 67.24%
Small lymphocytes 16.04%
Large lymphocytes 3.70%
Transitionals 10.30%
Eosinophiles 3.80%

Nov. 22, 1910.
Inoculated with 0.5 cc. emulsion.
(Widal atypical.)
Polynuclears 4893.%
Small lymphocytes 28.73%
Large lymphocytes 12.40%
Transitionals 10.30%
Eosinophiles 3.26%
Mast cells 0.50%

Nov. 27, 1910. 4.30 P.M.
Widal atypical.
Polynuclears 41.50%
Small lymphocytes 33.98%
Large lymphocytes 16.44%
Transitionals 4.29%
Eosinophiles 2.30%
Mast cells 1.80%
Inoculated with 0.75 cc. emulsion of typhoid bacilli.

Nov. 28, 1910.
Headache vertex and occiput.
Dec. 7, 1910. Widal positive (dilution 1-50).

TABLE III.—M. M. C.

Before inoculation—10 A.M., Nov. 7, 1910.
Leucocytes 5800
Polynuclears 51.68%
Small lymphocytes 37.12%
Large lymphocytes 6.29%
Transitionals 3.40%
Eosinophiles 1.30%
Mast cells 0.90%

99.89%

Inoculated 6 P.M. with 012 cc. emulsion of typhoid bacilli killed at 53°, injected sub-cutaneously at insertion of left deltoid muscle.
8 P.M.
Leucocytes 7200

2 A.M. Chill.
Nov. 8, 8 A.M.
Leucocytes 5800
Polynuclears 64.78%
Small lymphocytes 23.15%
Large lymphocytes 5.90%
Transitionals 3.24%
Eosinophiles 1.10%
Mast cells 1.00%

99.17%

Marked malaise.

Nov. 12, 1910. 8.30 A.M.
Leucocytes 4200
Polynuclears 41.34%
Small lymphocytes 43.38%
Large lymphocytes 7.63%
Transitionals 3.05%
Eosinophiles 2.50%
Mast cells 2.03%

99.48%

Inoculated with 0.25 cc. emulsion.
Chilly 8 P.M.

Nov. 12, 1910, 9.30 P.M.
Leucocytes 6200
Polynuclears 50.68%
Small lymphocytes 42.20%
Large lymphocytes 3.17%
Transitionals 1.90%
Eosinophiles 1.20%
Mast cells 0.80%

99.95%

Nov. 13, 1910. 12.30 A.M.—2. AM.
Chills.
11 A.M.

Polynuclears	62.78%
Small lymphocytes	26.90%
Large lymphocytes	2.06%
Transitionals	6.18%
Eosinophiles	1.61%
Mast cells	0.40%
	99.93%

Nov. 17, 1910. 11.30 A.M.

Leucocytes	6400
Polynuclears	42.67%
Small lymphocytes	45.26%
Large lymphocytes	4.80%
Transitionals	4.08%
Eosinophiles	2.04%
Mast cells	1.10%
	99.94%

Inoculated with 0.5 cc. emulsion.

Nov. 22, 1910.

Polynuclears	50.21%
Small lymphocytes	38.39%
Large lymphocytes	5.60%
Transitionals	4.40%
Eosinophiles	0.60%
Mast cells	0.70%
	99.90%

Widal atypical.
Dec. 7, Widal positive (dilution 1-50).

CONCLUSIONS.

1. Leucocyte counts may prove of some service in differentiating paratyphoid from typhoid fever, since counts show that the paratyphoid blood picture remains within the normal range (*a*) without tendency to hypoleucocytosis at any stage of the disease, and (*b*) without loss or drop in eosinophiles.

2. In interpreting this result it must be remembered that the epidemic from which these data were derived was one of mild paratyphoid fever (Bacillus paratyphosus, alpha type).

3. The blood cell picture after antityphoid vaccination remains within the normal range, with tendency to slight initial rise in leucocytes (one instance only of a slight drop in eosinophiles).

IV.

NOTE ON THE RELATION OF PARATYPHOID FEVER TO ANTITYPHOID VACCINATION.

BY MYRTELLE M. CANAVAN, M.D., BOSTON,

During the Boston State Hospital epidemic of paratyphoid fever (1910), the hospital administration instituted all precautions suggested by the Boston Board of Health, as well as various other precautions, to stop the spread of the disease. No attempt was made to inoculate patients, since but few had been attacked; but antityphoid vaccination was offered the 143 resident and non-resident physicians, nurses and employees, of whom 61 received one or more inoculations, and 50 received the prescribed four inoculations (5-day intervals,—25, ,50, 75, 100 millions bacilli, prepared by Dr. Leslie H. Spooner of the Massachusetts Board of Health).

Of the 50 inoculated, no one contracted typhoid; and but one contracted paratyphoid fever. This one, a nurse (A. P.), fell ill six months after the epidemic was over, and from the blood Bacillus paratyphosus, alpha type, was recovered, the disease running a three weeks' course and terminating in complete recovery. In this case the antibodies produced by B. typhosus were obviously not effective against B. paratyphosus, alpha.

Of the eleven persons who received partial vaccination (from one to three inoculations), one was reported (three inoculations) to have had a typhoid-like disease (possibly paratyphoid; data lacking) three weeks after leaving the hospital; Case U (one inoculation) contracted paratyphoid (fever on evening of vaccination) and the organism (alpha type) was recovered from the blood; Case Y was ill ten weeks with a continuous fever, no culture taken. This patient died in July, 1912, of tuberculous peritonitis, and should probably be regarded as a case of unrecognized tuberculosis.

Of the 82 uninoculated physicians, nurses and employees, 12 were sick before the vaccination was started. Of the remaining 70 (unvaccinated), 18, or 26%, became sick (in the epidemic).

In this connection, I may refer to the work of Firth,[1] of the Royal Army Medical Corps in India. Firth found that the influence of antienteric inoculation against infection with paratyphoid fever was apparently nil. At any rate, of 104 cases of paratyphoid fever in 1911, it appears that 97 had been inoculated against typhoid fever and 7 not inoculated. They naturally suggest a bivalent emulsion.

1. Of 50 antityphoid vaccines exposed to paratyphoid fever in dining-rooms and otherwise, prior to and during an epidemic (Boston State Hospital, 1910), one case contracted paratyphoid fever six months after the epidemic (B. paratyphosus, alpha).

2. Of 11 antityphoid (incomplete) vaccines, one showed first symptoms of fever on evening of inoculation (disease already incubating; B. paratyphosus, alpha); one may have had paratyphoid fever (data lacking); one had symptoms, presumably tuberculous.

3. Of 70 persons not subjected to antityphoid vaccination, but equally (or rather less) exposed to paratyphoid fever with the 50 vaccines, 18 (or 26%) contracted paratyphoid fever (epidemic cases, four with positive bloods, the only cases in fact from whom blood cultures were taken among the 18).

4. Possibly these findings indicate a degree of "crossed" protection (typhoid vaccine against paratyphoid fever); but this is not absolute, and consequently paratyphoid vaccination is indicated in appropriate circumstances.

[1] Firth: Jour. Roy. Army Med. Corps, No. 19, p. 157, 1912.

V.

CONCLUSIONS FROM WORK ON THE PARATYPHOID EPIDEMIC AT THE BOSTON STATE HOSPITAL, 1910.

BY E. E. SOUTHARD, M.D., BOSTON.

As pathologist to the Danvers State Hospital, 1906-9, and later as pathologist to the State Board of Insanity, I have had repeated occasion to supervise or give advice in epidemics. The work in some of our Massachusetts state hospitals for the insane in connection with these epidemics has often threatened to put an end to all other forms of scientific laboratory, as well as clinical, activity. Yet I have always held that the scientific laboratories of the state hospitals should be built around what may be termed a hygienic nucleus, and that after all our first duty as physicians in these hospitals is a duty to medicine at large and our second duty that to our specialty, mental disease, as such.

I may quote from my reports as pathologist to the State Board of Insanity of 1909 and 1910 in this connection as follows: —

"With respect to laboratories, the experience of our own as well as that of the general hospitals demonstrates that the most effective and lasting upgrowth of scientific spirit means building up the laboratory about a hygienic nucleus.

"In the first place, our patients require, for humanitarian and economic reasons, the best hygienic care,—care which nowadays indispensably calls for laboratory devices. By the routine performance of laboratory tests, which answer questions relating to the individual patient, and react on all the patients of an institution, the laboratory staff acquires the confidence of the ward staff, and the problems of each become the problems of the other. Thus, during the supervision of epidemiological work at Danvers Hospital, on bacillary dysentery, I noticed a progressive drawing-together of the laboratory and ward staffs. Besides the epidemiological results, which depend largely on recording what had hitherto remained unrecorded, the institutions actually obtained increased knowledge of their patients. During epidemic or endemic conditions, it was formerly the case that a tremendous amount of work with individual patients was done (though little recorded), and that psychiatric work was reduced to the barest necessities. Nowadays, with the foresight obtained from proper coördination, and the results of laboratory tests, even a diphtheria epidemic may not signify the stoppage of all efforts to classify patients accurately, and to accord to appropriate patients their individualized treatment. Moreover, the laboratory apparatus and recording facilities sufficient for hygienic work and the ordinary tests of general medicine make, with relatively inexpensive additions, an effective laboratory for psychiatric work." (*Report of 1909.*)

"The hygiene of State hospitals for the insane bids fair to be a subject of the greatest importance in the progress of public health work in general. Though not obvious at first sight, it is true that no other conditions are so favorable for the exact study of epidemics in man as the conditions of (*a*) regimen, (*b*) surveillance, (*c*) variety of life, (*d*) most important of all, presence of laboratories and laboratory workers found in modern State hospitals. Elsewhere it has always been possible for hospitals to secure special government workers or some local enthusiasts to work with precision in these epidemics; but neither the origin nor the subsidence, and especially not the interepidemic conditions, have been studied so well as in Massachusetts, whose State hospital laboratories have been constructed about a hygienic nucleus. In the sense that the first apparatus installed has been apparatus of equal service in hygiene and in psychiatry, and the pathologists have been imbued with the salutary modern idea that no sharp lines separate psychiatry from the rest of medicine and hygiene. Therefore, although a certain amount of energy has been spent by our pathologists on hygienic problems, I have felt the energy well spent. and have encouraged the ideal of the hygienic utility and advantages of our hospitals." (*Report of 1910.*)

One advantage of writing out the conclusions of a piece of work in which one had so little immediate personal share is that one can duly praise the endeavors of the actual workers. Especially is the work of Dr. Mary Gill-Noble, then Dr. Gill, to be praised for its fidelity and insight, the latter rendered doubtless keener by her previous prolonged and confining work with a diphtheria epidemic in the same hospital. In the rush of clinical work, one so often hears the worker say, "Why, doctor, we are so busy doing work that we have no time to record it," that the scientific attitude of actually recording clinical findings under epidemic conditions in hospitals chronically undermanned is deserving of great praise.

As for the laboratory side, the previous experience of Dr. E. T. F. Richards and Myrtelle M. Canavan in the Danvers dysentery epidemic stood them in good stead on the present occasion, and I need only point out, what is not always understood by those not directly in the work, how difficult it is to carry on special researches on top of regularly established routine. There were six medical workers in connection with the scientific side of the Danvers dysentery epidemic of 1908: here there were but three (or four, if the writer be counted), a quota far fewer than any hygienic commission would choose for such a purpose. At the risk of elaborating the obvious, I wish to point out that, in decades to come, our successors will wonder at our niggardliness in the comparatively inexpensive matter of research both in hygiene and in psychiatry. One reason for working overtime now is to lay a basis for adequate state support of these research matters in future. Yet I suppose there are many administrators of hospitals, even in the most highly civilized portions of our country, who would smile a superior smile at the idea of employing one or two additional skilled workers in epidemiology at the first appearance of an epidemic in a state hospital. "Why, doctor, what is our laboratory for, if not to meet and handle just such conditions as those of an epidemic? Why hire additional

workers? Simply let the ordinary routine go for a time!''

I can the more safely indulge in these mild platitudes because, after all, in the present epidemic perhaps not much was sacrificed to the Procrustean ideal of not raising the per capita cost. And the epidemic happened to be of no great proportions. In future, however, it seems to me that either the hospital itself or the state board of insanity should be empowered under epidemic conditions freely to call in additional skilled and technical aid, or, if this is not feasible, that reasonable expenses of such scientific epidemiology should not be frowned upon if they appear in the form of a deficit from the annual appropriation.

GENERAL CONCLUSIONS.

Etiology. The microörganism of the epidemic, according to Richards' findings, is undoubtedly Bacillus paratyphosus (agreement in general features with known bacilli; differentiation from Bacillus typhosus and Bacillus coli communis by growth on carbohydrate media).

The type is very probably alpha or acidumfaciens (behavior in litmus milk, agglutination reactions). This fact is of interest since it conforms to the general rule that the alpha type is more frequent in this country than the beta or alkalifaciens type. But it is curious that it is the beta type which is ordinarily supposed to be the ''meat-poisoning'' organism, whereas here we are apparently dealing with a ''meat-poisoning'' epidemic due to the alpha type.

Epidemiology. Circumstantial evidence seems to point to the immediate origin of the outbreak from a male patient who had been a kitchen-assistant occupied with preparing meat, developed fever, and yielded what was eventually determined to be Bacillus paratyphosus in his blood.

At the same time a woman patient developed fever, a Widal reaction (typhosus), and actively motile organisms in her blood. This patient helped to serve food.

Appropriate sterilizing measures were carried out in the kitchen and serving-room, but cases continued to develop during the succeeding month.

A question which must remain unanswered is the method by which the first patient became infected. He had been slightly ill for several days before becoming febrile, but, being hypochondriacal, he secured little attention for his complaints. Whether he infected the meat (some of which six months later showed Bacillus typhosus) or was infected by it cannot be safely asserted. The absence of other similar cases before the epidemic might point to some extramural source (*e.g.* new attendant, or nurse returned from vacation, or infected meat); but, on the other hand, if the organism persisted in the ice-box for six months, there were no further cases of disease which could be assigned to the organism, except one nurse who had a moderately severe attack (B. paratyphosus alpha in blood) in June, 1910.

The season in which the outbreak developed is a little later than that in which the majority of typhoid fever patients are admitted to hospital, but the epidemic ceased with the advent of colder weather (December). The previous season had been hot and dry, and the ground-water was low—conditions thought to favor the development of typhoid fever.

In this small epidemic, 23 women and 7 men were affected, thus reversing the figures for the development of typhoid fever, in which males far outnumber females.

The fact that patients were largely spared may perhaps be due to the greater age of patients, *i.e.* if conditions in paratyphoid fever resemble those in typhoid fever, in which there is a very decided drop in the incidence after forty years of age.

Dust, flies, ice (from local ice-pond), plumbing, refrigerators, were considered as factors in the outbreak. Beyond noting several features in this old plant which require alteration, the writers were not able to incriminate any of these conditions as the factor in the outbreak.. Possibly infected meat was the source.

It appears most instructive to compare the findings of this epidemic of paratyphoid fever with those of typhoid fever. The results may be presented in parallel columns with some comments.

TYPHOID FEVER. (T. McCrae, 1913)	PARATYPHOID FEVER. (Data of this epidemic, Gill-Noble.)
Onset most frequently 1 with headache (1117 in 1500 cases)	Same.
2. Anorexia (825)	Not marked, as a rule disappearing in second week.
3. Diarrhea (516)	4 cases in 30.
4. Abdominal pain (443)	5 (2 of these slight) in 30 cases.
5. General malaise (436)	Not severe.
6. Vomiting (404)	2 cases in first week.
7. Cough (393)	Mild bronchitis in 5 cases, (severe in 1)
8 and 9. Chilly sensations (392) and chills (334)	15 of 30 cases showed chills.
10. Epistaxis (323)	13 of 30 cases, but often not initial.
11. Fever (285)	Frequent, low.
12. Nausea (255)	2 cases (combined with vomiting).
13. Constipation (249)	Persistent in 2 cases.
14. Backache (215)	General (suggesting influenza or tonsillitis).
15. Sweating (207)	Common (20 cases in first week).

The onset of symptoms in this epidemic accordingly presented a few minor differences from that pictured by McCrae in the left hand column above. The onset symptoms, merging in some instances into symptoms of the first week, appear statistically in the order: headache (29), backache (27), sweating (20), chills or chilly

sensations (15), epistaxis (13). As for initial fever, the later experience with routine temperature-taking in all "contacts" seems to show that initial fever was practically constant. Anorexia, diarrhea, abdominal pain, general malaise, vomiting, were not so frequent in this paratyphoid epidemic as in McCrae's combined Johns Hopkins figures for typhoid fever. The figures for the remainder of the fifteen major onset symptoms of typhoid fever listed above are too small for effective correlation.

McCrae mentions, for typhoid fever, six special modes of onset, of which the second (pulmonary) is perhaps the only one illustrated in the paratyphoid epidemic (bronchitis in five cases). One patient had lobar pneumonia.

TYPHOID FEVER. (T. McCrae.)	PARATYPHOID FEVER. (Data of this epidemic, Gill-Noble.)
Symptoms of second week more severe.	5 of 30 cases recovered completely in second week; in others only symptom, disproportionate exhaustion.
Early general appearance frequently characteristic.	Negative or not characteristic.
Fever constant, 1118 in 1500 reached 104°	Same. 8 in 30 reached 104° (only one reached 104.4°).
Chills not infrequent.	Same.
Skin: rose-spots (80%)	No rose-spots in 21 cases specially examined, but eruptions in 5 cases (3 papular).
Sweating not common at onset and rare in course.	Sweating in two-thirds of all cases.
Diarrhea in course (17.4%)	Diarrhea (16.6%).
Constipation in course (51%)	Constipation (76.6%).
Abdominal pain (44%)	Abdominal pain (16.6%).
Hemorrhage (7%)	Hemorrhage (0).
Perforation (true % not yet established—2-3%)	Perforation (0).
Spleen felt (71.6%)	Spleen enlarged (33%) but palpated in 3 cases only.
Bronchitis "almost a specific symptom."	Bronchitis (16.6%).
Lobar pneumonia (1.5%)	Lobar pneumonia 1 case in 30.
Bronchopneumonia (1.2%) London fever hospitals.	Absent.
Pulse "less than would be expected from fever."	Pulse averaged 70-108.
Heart not characteristic.	Precordial pain, 3 cases (2 with syncope in second week).
"Nervous" symptoms of some sort almost universal.	Headache, 29 cases; stupor, 6 cases; delirium, 3 cases; dilated pupils, 12 cases.
Deafness without discoverable lesion comparatively frequent.	Deafness 2 cases.
Retention of urine common at onset.	Retention (16.6%).
Acute nephritis hardly 1% (Curschmann)	1 case (insane).
Menstruation as a rule ceases.	Suspended in 1 case.
Arthritis rare.	Stiff joints (19 cases in 30).
Duration 29.4 days of fever, 49 days from onset to discharge.	Duration 11 to 35 days.

The laboratory findings may be grouped as follows:—

TYPHOID FEVER. (T. McCrae, 1913.)	PARATYPHOID FEVER. (Richards and Canavan).
Bacilluria, probably 20-25%.	Not found in cases examined.
Comparatively few bacilli in stools.	No *paratyphosus* found.
Bacillemia 75%, (Coleman and Buxton).	Bacillemia, 100%, of cases examined (7), 2 as early as third day, 2 on ninth day.
Widal reaction almost always present at some stage, rarely before seventh or eighth day).	Widal reaction (*Bacillus typhosus*) positive, 4 cases in 30 (one of the 4 yielded *bacillus paratyphosus*), suggesting "group-reaction."
Leucopenia, to some extent progressive with the severity and duration of the disease.	Bacilli clumped by immune sera (*paratyphosus alpha;* less marked, *paratyphosus beta;* not *typhosus.*
In case there is suspicion of paratyphoid fever, blood cultures necessary or tests with patient's serum against his own bacilli.	Tendency to leucopenia, hardly of diagnostic value, except as excluding some forms of sepsis.

GENERAL CONCLUSIONS.

The epidemic of mild paratyphoid fever at Boston State Hospital in 1910 seems beyond question due to Bacillus paratyphosus, alpha (findings of Richards)[1].

Apparently the source of the epidemic was infected meat or else a patient with paratyphoid infection may have spread the epidemic through meat. The clinical features of the epidemic of greatest interest are presented in the above parallel columns. Mention may be here made of the fact that initial fever was practically constant. Anorexia, diarrhea, abdominal pain, general malaise and vomiting were not so frequent in this paratyphoid epidemic as they usually are in typhoid fever. Of special modes of onset which might be confusing in diagnosis, bronchitis may be mentioned. In the course of the disease stiff joints occurred in 19 of 30 cases of paratyphoid fever, whereas in typhoid fever, arthritis is rare. Four of the patients suffered from muscle pains in the back of the neck. Malaria was suspected in one case from the nature of the acute symptoms.

A case is presented which died some years after the epidemic and showed thickening of the ileum, possibly representative of former intestinal disease, but whose cultures, including that of the gall bladder, failed to show bacillus paratyphosus.

The clinical picture shows points of interest in the temperature curves. A case will occa-

[1] E. T. F. Richards: Bacteriology of Epidemic of Paratyphoid Fever, Journal Lancet, St. Paul, 1913.

sionally have a beginning temperature suggestive of typhoid fever, but this is not the rule. The intercurrent bronchitis fails to affect the temperature reaction, so that it may possibly be supposed that it is a portion of the disease rather than a truly intercurrent phenomenon. But it must be remembered that insane patients show some differences in fever reactions to various infections from the reactions shown by sane persons.

Eight cases in 30 showed a peculiar drop of temperature to subnormal in the second or third week,—as a rule, between the tenth and fourteenth day. This temperature drop is accompanied by a drop in the pulse and by an access of the most severe subjective symptoms felt at any time in the disease.

The blood cell pictures show that there is no hypoleucocytosis or loss or drop in eosinophiles in paratyphoid fever (of the type here described), since the counts remain within the normal range; this point may be of some value in differentiation of paratyphoid fever from typhoid fever.

It was incidentally learned that the blood cell picture after antityphoid vaccination also failed to show hypoleucocytosis, but instead tends to show a slight initial rise in leucocytes.

The antityphoid fever vaccinations carried out early in the epidemic as a possible protective measure, gave the opportunity for a few observations on the relation of paratyphoid fever to antityphoid vaccinations, and it would appear that there may be a moderate degree of crossed protection (typhoid vaccine against paratyphoid fever) since non-vaccinated persons were far more subject to paratyphoid fever than were persons vaccinated against typhoid. The rule was, however, not absolute.

Medical Progress.

PROGRESS IN OTOLOGY.

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and

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INTRODUCTORY.

In general the recent otological literature dwells mostly on internal ear conditions. With methods of examination perfected and placed in a practicable form the internal ear has been brought within the observation of the average examiner and a flood of data on these cases with a consequent advance in our knowledge has been the result. Barany has still further elaborated his labyrinthine tests; Neuman, Alexander, Urbantschitsch, Kerrison have perfected the technic; these, Lake, Milligan, Richards, have added to our operative skill; while Siebenmann, Manasse, Politzer, Shambaugh, have continued their researches in the microscopic anatomy and pathology. The Wassermann and Noguchi tests and the use of salvarsan have extended our means for diagnosis and treatment. Keeping pace with this advance have been efforts in the difficult field of meningitis and brain abscess. Haynes has elaborated a new operative avenue for the draining of the meninges while he and Kopetsky present their findings in spinal fluid analysis which promise to aid us toward earlier diagnosis. In mastoid surgery, Leidler, Schüller, Birkett, Lange, Brown, and many others have pointed out how much can be gained by radiography, and Mosher offers his transillumination method for a more ready diagnosis; while Cheattle and Randall have carried further their researches into the anatomical variations of the temporal bone. Of particular importance in office work are Yankhauer's speculum and eustachian instruments and Holmes' pharyngoscope. The bacteriology of otitis infections has been more carefully investigated and the more discriminate use of vaccines encouraged. On the whole progress has been more along efficiency in the application and use of our present knowledge and a more thorough gleaning of the wheat from the chaff. To make the review more systematic in its scope and more useful to the reader, an arbitrary assortment of the subjects under the main anatomical divisions has been followed. References are appended for him who would go more into detail than space here permits.

EXTERNAL EAR.

Anesthesia. — Skillern (Boston Med. and Surg. Jour., October, 1913, p. 503) offers a method for local anesthesia in furunculosis of the external canal. He infiltrates Jacobson's nerve by injecting 2% novocaine and 1-3000 adrenalin immediately in front of and at the level of the tragus. Complete operative anesthesia is thus induced which has the advantage of continuing on for some time. A longer anesthesia can be obtained from quinine-urea or alcohol infiltration.

W. Albrecht (*Archiv*. 85, 3, p. 198) makes use of an electrical instrument with polar attachment for anesthetizing the drum. A solution of 20% cocaine, adrenalin, and saline, is dropped into the canal and the instrument is brought against the membrana tympani. The electrolytic action of 1.5 to 2 m. a. for three to four minutes induces the cocain to penetrate through the superficial epithelium in acute suppurative cases, while a little longer time is needed for the chronic.

Atresia.—Dalmar of Posen (*Archiv von Ohrenheilkunde*, Band 84, Heft 2) reports a successful operation on a bilateral atresia of the bony canal and microtia in a child of three. A radical mastoid excenteration revealed a tympanic cavity 12 mm. in, with no membrana tym-

pani. Thiersch grafts hastened healing and "normal hearing" resulted.

Othematoma.—Urbantschitsch (*Archiv von Ohrenheilkunde,* Band 84, Heft 1) aspirates the fluid of a hematoma, injects 0.5 of the tincture of iodine—massages one to two minutes and then aspirates the iodine, repeating after a few days; 75% of his cases were cured in four to five days.

Bacteriology.—Priestly (*Jour. Laryngology,* 27, 4) made cultures from the external canals of 18 normal persons and recovered a diphtheroid organism in 15.

Aurophones.—Barth (*Archiv,* 84, 3) reports a series of cases where mechanical electrical instruments were tried to improve chronic deafness. His findings are of interest and are worth reading.

MIDDLE EAR.

Anatomy.—Little has been done on the anatomy of the middle ear alone. Cavanaugh (*Annals,* Sept., 1913, p. 699) has contributed the results of his investigations. He negatives the general opinion that the infant membrana tympani is more horizontal than the adult. He considers that this impression is gained from the difference in the situation of the canal, in the baby and in the adult. In the former the bony canal has but partly developed, the auricle is placed relatively higher on the skull, and the drum is at an acuter angle to the axis of this canal than to that of an adult.

Secretory Otitis.—For chronic catarrhal processes in the middle ear one school champions vibratory massage, the artificial induction of hyperemia, and allied methods, appliances being used both through the external canal and by the eustachian tube; while the other school lays more stress on the establishment of the best conditions in the naso-pharynx and in the general metabolism.

For atrophied membranae tympanorum and relaxed ossicular ligaments Heath (London) proposed frequent blistering by means of graded strengths of a tincture cantharidis solution. The end sought was a drum-head much thickened by scar tissue and an accompanying stiffening of the ossicular chain. This was pretty universally tried but with questionable results and the enthusiasm for it has waned.

In eustachian tube treatment, Yankhauer has perfected a series of bougies and applicators which with the aid of his catheter serve to make methods of treatment here more satisfactory.

His naso-pharyngeal speculum has filled a definite need in working about the eustachian tube but has been largely supplanted by the more delicate indirect method with Holmes' endoscope. This latter instrument which has very materially increased our armamentarium in the diagnosis and treatment of posterior nares and eustachian tube conditions is mentioned universally with enthusiasm, and promises to increasingly aid us as we become familiar with its use.

SUPPURATIVE OTITIS.

Tympanum.—In general otologists are syringing suppurative middle ears less than formerly and relying on dry wicking and frequent wiping. Spira Krakou (*Jour. Laryng.,* August, 1910, p. 414) recommended the judicious use of Bier's stasis in selected cases. He gains this by a constricting collar about the neck and a suction apparatus over the mastoid. But at the same meeting, Fleischmann (Budapest), Schwartze, Hollinger, and Wanner (Munich) all spoke against its use.

Vaccines.

Dr. Nagle (*Jour. Laryng.,* December, 1910, p. 659) reports the best success with vaccines of any writer. She gives a description of her bacteriological technic and of the method of administration. The results of treatment in 40 cases are given. In six the discharge had been present for several months, and 34 had a history of from one to forty years. All had resisted the usual forms of treatment. Local cleanliness alone was carried on in addition to the vaccine therapy. The results show only one case failing to be cured of the discharge though some required 21 months for an ultimate cure. The usual forms of infection were found. Stock vaccines had proved unsatisfactory. Eight took part in the discussion but none reported such good results.

Ossiculectomy.—Two English surgeons advocate ossiculectomy in selected cases of chronic otitis media. Macleod Yearsley (*Jour. Laryng.,* Oct., 1910, p. 523) concluded in his article reporting seventy operations over a period of fifteen years that—

1. Ossiculectomy offered in selected cases at least 30% of cures and 42% of improvements.
2. The operation should include careful removal of the attic wall, especially in its posterior part.
3. The annulus tympanicus should be curetted to prevent the possibility of a false membrane forming.
4. The operation was a useful alternative measure to the radical mastoid method, especially as it in no way militated against the success of the latter should the simpler method fail. His later results showed a higher percentage of cures on account of perfected technic. In no instance was there a facial paralysis or a dislocation of the stages. The division of the tendon of the stapedius a few days after operation aided the hearing.

In the discussion of the paper, only one supported the writer, the others having abandoned the operation for the radical mastoid excenteration.

The second writer, Hunter F. Tod (*Lancet,* Sept. 3, 1910) reports on 120 operations. His results were still better: 52% cured and 30% improved. He argues in favor of the operation because: (1) it avoids the radical operation; (2)

it improves the hearing in a large number of cases, and (3) it is easier for the patient.

Eustachian Tube Curettement.—Over against this method, Yankhauer presents his operation for curettement of the eustachian tube on the basis that the shutting away of the naso-pharynx removes the constant source of re-infection in a chronic otitis media. Different writers report varying degrees of success. McCullagh (N. Y.) reported some very favorable results and failure in others. Yankhauer (Transactions of International Otol. Congress, 1913) reported a majority of cures. Lougee (at American Medical Asso. Meeting, 1914) reported a series of carefully-conducted cases at the Massachusetts Charitable Eye and Ear Infirmary with but few cures.

MASTOID.

Anatomy.—Randall and Cheattle (Transactions International Congress, 1912) have carried forward their studies on the anatomy of the mastoid and temporal bone. They point out that a relatively infrequent but none the less present, dissimilarity in the measurements between one temporal bone and its fellow, make it unreliable to presume that surgical landmarks are the same in both ears. W. S. Syme of Glasgow (*Jour. of Laryng.*, June, 1912, p. 308) reports anatomical peculiarities found in 1050 skulls.

Transillumination.—Mosher's transillumination apparatus (*The Laryngoscope*, Jan., 1912) and radiography, have offered means for decided advance as helpful aids to anatomical variations and to diagnosis. The transillumination apparatus when inserted tightly into the external auditory canal reveals by relative density and by comparison with the other side, whether an inflammatory exudate is present in the mastoid, or whether we have a pneumatic or diploetic or sclerosed type of mastoid. The simplicity of this method and the portability of the instrument, make it a valuable daily aid to the surgeon in determining the progress of a mastoid involvement.

Radiography.—Though more elaborate and correspondingly less ready of easy application, the x-ray shows still more to the examiner. The most exhaustive work on this subject we find is an Arbeit by Rudolph Leidler and Arthur Schüller (p. 173, *Archiv*, 82, 3 and 4) dealing with "the anatomy of the human temporal bone as shown in the x-ray." Some very good illustrations and plates accompany this article. They glean a surprising amount of information from the pictures. "The mastoid process can really be accurately interpreted by the x-ray. We can know concerning its form, whether long or short, broad or narrow; its structure, whether pneumatic or diploetic; the size and situation of the cells, and of their extension into the squamous or pyramidal portion." The external and internal auditory meatus, the tympanic bone, the pyramid, the canals, the vestibule, and the cochlea, are all frequently discernible. The location of the lateral sinus, the jugular bulb, and emissary vein, can generally be demonstrated.

Other investigators do not find as much, but they show many important landmarks. Lothrop (BOSTON MED. AND SURG. JOUR., March 5, 1914, p. 343) relies upon the x-ray for aid in demonstrating the early congestive stage of mastoiditis, the frank purulent stage, the vascular partly broken down mastoid, and sometimes an extradural abscess. Two of his plates showed the Fallopian canal. He could not demonstrate a thrombosed lateral sinus. Dixon (*Annals of Otol.*, Sept., 1913, p. 369) was able to diagnose one. He advises a skiagraph in every acute suppurative otitis media.

Iglauer and Lange of Cleveland are perhaps the leaders in this country. Brown, George, Liebman have done much work in Boston. Law (*Annals*, Sept., 1913, p. 635) recommended more than one plate for the accurate localization of the lateral sinus. Birkett, a pioneer in this work (*Annals*, Sept, 1913, p. 656) refers to the anatomical and clinical value of the x-ray. "We can tell when the mastoid process has become involved in acute inflammatory or purulent infection, by a distinct blurring or veiling of the cells. Should the disease have existed for some time, leading to destruction of the cells, this is often indicated by distinctly enlarged cavities." One case showed a thrombosed lateral sinus. The pus in and around the thrombus probably brought this out in the picture. Though operative interference almost invariably confirms his radiogram readings, he recommends the x-ray as "a nice adjunct" in diagnosis, and more reliance to be placed on clinical findings. Stewart (*Annals*, Sept., 1913, p. 677) makes use of the x-ray in children and advises both antero-posterior and lateral views. He finds :

1. That we frequently have distinct and well-formed pneumatic cells as early as at two years.
2. That there is a wide variance in the character location and extent of the mastoid cells under 10 years.
3. That given six children of any age, say five years, no two will have mastoids alike.
4. That the generally accepted view that the cells are of the same character on both sides is not true in all cases (15% showed considerable variance). His technic and eight stereopticon plates follow.

Bacteriology.—The taking of cultures at the time of operation on the mastoid has resulted in considerable information on the bacteriology of such infections. The literature gives several tables and discusses at particular length the streptococcus mucosus. Albert of Göttingen (*Archiv*, 85, 4) quotes the results of a series of 110 cases; 100 of these showed a streptococcus infection 73 of which showed a mixed infection and 18 showed a streptococcus mucosus (con-

cerning which infection he remarks that though it runs an insidious course, he does not ascribe to it the malignancy that other authors do) O. Alberti (*Archiv*, 92, p. 111) gives the results of the bacteriological findings in 286 cases of acute mastoiditis. The leading percentages in his table are:

Streptococcus longus	57.9
Pneumococcus	9.5
Strepto. mucosus	3.85
Staphylo. albus	3.15
Influenza B.	2.45
Staph. aureus	1.75
Tubercle B.	1.05
Bact. coli	.07
Sterile	13.34

The remaining were chiefly mixed forms. He draws attention to the fact that the virulence of the organism and not its variety determines the severity of the infection.

George S. Dixon (*Annals*, June, 1913, p. 303) gives the results of 5495 smears taken at the New York Eye and Ear Infirmary during the past eleven years. He found the streptococcus predominating, 24.8%; next came pneumococcus 12.2%; then staphylococcus 4.8% and 26.6% of a general mixed type (needing a radical mastoid operation). He speaks of the streptococcus mucosus as the most insidious organism the otologist has to deal with, not because of any initial virulence, but because the symptoms become lessened and lull the surgeon into a false sense of security, to flare up at last and prove fatal. In these cases Dixon finds the radiogram of service as it tells him, whether the process is still active or has quieted down, whether an operation is needed or it is safe to wait.

In ten fatal cases of mastoiditis complicated with meningitis Logan Turner (*Jour. of Laryng.*, Feb., 1911) reports eight showing streptococcus pyogenes, one showing pneumococcus, and one due to an unnamed diplococcus. His frequent finding of B. proteus in cholesteatomatous cases suggests to him a connection here.

Streptococcus Mucosus.—Much space is devoted to the streptococcus mucosus infection. Some authorities (Albert, *Archiv*, 85, 4) find that though this form of infection runs an insidious course, it does not yield the extreme conditions that is credited to it, while others (Bryant, Annals, June, 1913, p. 482) operate on a mucosus otitis at the first evidence of mastoiditis. Among the first to draw attention to the dangers of this form of infection were Neumann and Ruttin (*Archiv*, 79, 1 and 2; *Laryng.*, Nov., 1910, p. 612) who described the course of events as follows: The tympanic inflammation subsides or passes into a state of suspension as early as the first or second week, leaving behind, however, considerable disturbance of hearing and continual tinnitus. The membrane appears as it does in moist catarrh, dull, lustreless, "humid" red in color; the details though still recognizable have lost their sharpness, and the light reflex is badly defined. There is no pain or at most only a little tenderness on pressure over the mastoid. If paracentesis is performed a mucous or muco-purulent secretion is liberated. These obscure symptoms persist unchanged until the advancing destruction of bone attracts attention, either by threatening the life or by leading to the formation of mastoid abscess. During the stage of the middle-ear inflammation the symptoms may be so trivial as to escape notice entirely and the first event may be the sudden appearance of some intra-cranial complication.

W. Zemann of Vienna (*Archiv*, Band 92, Heft 1 u. 2, p. 74) reports 21 cases of streptococcus mucosus infection of the mastoid, and adds to the above testimony: (1) mucosus suppuration is relatively frequent; (2) the course of a mucosus otitis is typical in about 50% of cases:—a long prodromal period with insignificant symptoms and characteristic appearance of the middle-ear, a tardy onset of the suppuration or a complete cessation of the same, with almost no rise in temperature and sudden manifestation of the complications, (though frequently the infection resembles much that of the influenza bacillus and cannot be differentiated from an ordinary otitis.); (3) extension of the mucosus infection to the mastoid and endocranium is very frequent. The pathological picture of the mastoid is typical:—several broken down foci separated from one another by more or less sound bone, these foci growing together and uniting in advanced cases. Very often the disease process is primarily localized in the mucous membrane of the mastoid cells. (4) Perisinuous abscess is the most frequent of the endocranial complications, in over half the cases. (5) The tendency for the mastoid-osteitis to progress through the cortex to the outside is very slight. Much more often it breaks into the cranial cavity. (6) Bacterial examination is important. (7) Any post-operative rise in temperature means a fresh pus-pocket and calls for further operative interference. (8) Convalescence is very protracted and takes an average of 62 days. (9) The prognosis is favorable if the pus foci are promptly drained.

Of other forms of infections the tubercular bacillus is discussed by Goerke of Breslau (*Archiv*, 91, 4). He finds tuberculous meningitis to be the rarest of the cerebral complications of otitis but more frequent than has been appreciated until lately. The channel of entrance has been shown by experimental research and clinical evidence to be very rarely by way of the labyrinth or Fallopian canal, and generally by the eustachian tube to the carotid canal and thus into the meninges. Siebenmann in discussion of this paper referred to pathological investigations he has been making on all autopsy material with especial reference to tubercular infections.

He is now preparing a report on 91 cases of tuberculosis and makes a résumé of them here. An acute inception was found in 50 mastoid processes. In children the fungoid form was frequent, in adults the necrotic. In one-third of these cases there was labyrinthine involvement, four-fifths of them were operated on, one-tenth of the cases had post-operative facial paralysis, one-fourth died during treatment, one-fourth were discharged improved of which four died later. Of these but one died of miliary tuberculosis.

In vaccine therapy, out of five cases of meningitis and four of sinus thrombosis, Logan (*Jour. Laryng.*, June, 1912, p. 22) reports two cases distinctly improved and finally cured by the repeated use of vaccines.

Operative Methods—In mastoid operative work a few helpful details are brought out. Reik of Baltimore (Transactions of International Otol. Soc. Boston, 1912) adheres to his principal of the blood-clot operation and primary suture following a simple mastoid operation. For those who do not desire so radical a measure he recommends secondary closure about a week after the operation. The authors can bear testimony to the efficacy of this procedure in selected cases. Barany (*Archiv*, 84, 1) reports two successful cases of primary union, while Politzer reminds us that there are many failures and recommends his modification of filling the cavity with melted vaseline before closing it.

In the summer of 1912 Heath demonstrated his operation at the Massachusetts Charitable Eye and Ear Infirmary before the members of the International Congress. A noteworthy point he raised was very early operative interference, not to avoid danger to life but to minimize injury to hearing. Mosher (*Trans. Am. Otol. Soc.*, 1913) reports the post-operative course of these cases. Even making allowance for the fact that the operator could not continue to care for these cases, the results as found in this report would seem to discredit this operation as performed by its inventor. Richards (*Annals of Otol.*, Sept., 1913, p. 675) suggests this or some similar operation for a chronic otitis media in children where a radical mastoid operation would not be justifiable.

In radical mastoid work, Welty (*Archiv*, 85, 1 and 2, p. 27) describes his method for skin-grafting. He grafts on the fourth day, using three grafts. Of 18 cases four healed in three weeks, 10 in four weeks, four in six weeks. The hearing was improved in 14. Welty also recommends primary grafting as giving still better hearing, though not quite as sure to take. Hammond (*Annals of Otol.*, Sept., 1913, p. 652) finds that skin grafting hastens convalescence but does not give a better end-result.

To hasten healing after the radical mastoid operation, scarlet red has proved efficacious in the hands of Dembinski (*Archiv*, 84, 1) and Grossman of Berlin (*Archiv*, 84, 1) and Ross (*Jour. of Laryng.*, Mar., 1913). Different forms of rays have been useful in hastening healing. Urbantschitsch (*Archiv*, 91, 4) used radium rays and emanations on tubercular forms; and Beck of Vienna secured rapid healing in two refractory cases by the use of the sun's rays.

ENDO-CRANIAL COMPLICATIONS.

Much advance has been made in this field. Leading in brain surgery is Cushing of Boston, who has done so much to advance the technic of endo-cranial surgery. In a study of brain topography, it is suggested that otologists might be of real aid as they come in contact with many cases where the brain is exposed. Ethyl chloride could be used on these exposed areas as a temporary local anesthetic. Systematic effort and plotting in this might enable us to considerably increase our total knowledge concerning brain foci.

Sinus Thrombosis.

Gustav Bondy (*Archiv*, 85, 3, p. 216) reports three cases as clinical evidence that a suppurative process can pass through a healthy sinus wall. In each case the sinus was exposed and appeared healthy and there had been no evidence of thrombosis. Later, symptoms developed and the sinus was opened and found thrombosed. The author points out that this is, however, so rare a termination as not to influence the operator in exposing the sinus if such seems indicated. The reader is referred to a most scientific research by Haymann (*Archiv*, 83, 1 and 2, p. 1) who reports elaborate experimental work on animals for the purpose of determining this point. By various methods of injection of the infection and by laying on the sinus wall infected tampons, also by puncturing, by pressure, and by incision, he tried to discover the means which most surely led to a thrombosis. The infected tampon resulted in a thrombosis the most often. This was laid on the healthy, uninjured sinus wall. The conclusion is that infection can and does enter through a healthy wall or dura.

As to ligation of the internal jugular, Stenger of Königsberg (*Archiv*, 84, 2, p. 135) claims that a distinction should be made between acute and chronic mastoid cases. He cites his experience in 32 acute cases where 23 jugulars were tied, of which 19 recovered and four died, and nine were not tied and all recovered. Of 33 chronic otitis cases developing sinus thrombosis all were tied and only 18 recovered.

Meningitis.

Of particular note in the discussion of meningitis is the carefully prepared paper from Mygrind's clinic (Blegvad, *Archiv*, 83, 3 and 4, p. 247) discussing pachymeningitis. The author finds but 43 cases reported, but 27 of which shed any light on the disease. These he reviews carefully, dwelling at length on the etiology and

pathology and symptoms. Under diagnosis he finds it very difficult to differentiate between this form and leptomeningitis and brain abscess. Early operative interference is indicated as only in these are cures reported though he does not doubt that many undiagnosed cases have gone on to recovery without such interference.

Streit of Königsburg (*Archiv*, 84, 2) tried to induce experimental meningitis in dogs and cats. He reports that the greater the involvement of the dura, the more pronounced were the cerebral symptoms.

Sir V. Horsley (*Jour. Laryng.*, 27, 4, p. 205) discusses meningitis and mastoiditis and considers it criminal not to relieve brain pressure if there is an optic neuritis. "All cases of otitis media with optic neuritis ought to have a free operation done on the mastoid, and if the neuritis does not clear in a short time, the subdural space should be opened by a separate operation above."

Of particular interest in the diagnosis and treatment of meningitis are the operation devised by Haynes (*Laryngoscope*, June, 1912, *Jour. Laryng.*, March, 1913, p. 162), and Kopetsky's researches on spinal fluid analysis. The effort is made to discover by the diminution of the carbohydrates in the fluid, and an increase in the solid content, more especially that of proteins, with a changed cell count, evidence of meningitis earlier than our methods have permitted us to recognize it. At this early stage, Haynes recommends drainage of the meninges through the fourth ventricle by an entrance through the occipital bone in the mid-line where he enlarges the foramen magnum, incises the dura, and inserts drainage to the ventricle. Theoretically the operation promised a very material advance, and a few successful cases have been reported. Dench (*Laryngoscope*, Sept., 13) gives voice to the general conservative opinion in his review of three cases which were selected by him as favorable cases for this operation. All developed frank meningeal symptoms and ultimately died. He concludes that though theoretically the operation is ideal in effecting drainage here, it is a question whether it will offer the means desired for controlling this practically hopeless complication in otitic surgery.

And now Kopetsky has read a paper (Amer. Medical meeting, 1914, and Triological meeting, 1914) stating his conclusion that this operation does not yield the results hoped for and that he has given it up. With this evidence against it the operation will not longer be accredited; but it must none the less stand as a splendid and logical effort toward the control of otitic meningitis.

Ewing W. Day (*Laryngoscope*, Nov., 1913) reports eight cases unsuccessfully operated by this method and gives the post-mortem findings. He concludes that drainage of the cisterna magna hinders the development of a diffuse meningitis over the hemispheres, prevents the accumulation of inflammatory exudate in the subdural spaces, but appears to have no effect upon the accumulation of pus in the pia-arachnoid and does not influence the progress of the infection at the base of the brain. The accumulation of pus here was present in all of the post-mortems.

In a discussion before the Royal Society of Medicine, Milligan (*Jour. Laryng.*, Jan., 1913) takes up the condition and reactions of the spinal fluid in meningitis. Under normal circumstances the fluid is under 20 to 30 mm. pressure, has an alkaline reaction, and a specific gravity of 1005 to 1008. A bacterial invasion of the fluid lessens the alkalinity or changes it to acid, a useful bedside test as to the progress of the disease. Attention is drawn to the presence of a cerebral anemia as a result of increased intra-cranial tension. This tension should be relieved by spinal puncture. This factor the author feels is not enough appreciated as being frequently a determining one in the course of the disease. He has found a slight cutting off of the upper tone scale in the good ear to be a frequent occurrence which he accounts for by this same increase in tension and in the brain anemia.

J. Stoddard Barr reported an interesting experiment before the Otol. Section of the British Med. Asso. in October, 1910. By means of a lumbar puncture needle in situ and another into the lateral ventricle through a trephine opening above and behind the left ear, he irrigated a carbol-fuchsin solution through the meningeal tissues in a child, post-mortem. He used pressure gained by holding the solution supply two inches above the head. Examination of the brain afterwards revealed the stained fluid not only in the third and fourth ventricles and the subarachnoid space and cerebro-medullary cistern, but it passed forward into the inter-pedunculated cistern, upwards along the sylvian fissures over the anterior ends of the temporosphenoidal lobes, and even along the vaginal sheath of the optic nerves. The question arising would be as to whether living tissues would permit of so extensive and free an irrigation under so little pressure.

INTERNAL EAR.

The Cochlea.—Hearing in Infants.—Constantin of Marseilles (*Jour. Laryng.*, July, 1912, p. 1) and Kutwirth of Prague (*Archiv*, 84, 3, p. 206) report conclusions concerning the amount of hearing present in the normal infant. The former quotes Kölbreuter: that the child cannot distinguish as deep sounds as the adult, and Rudolphi: that the newborn has a very obtuse auditory sense, the cavities being filled at first with an organized mucous tissue which persists some weeks after birth. Kölbreuter (using Körner's "cricri") claimed that the newborn child reacted during the first 24 hours of life, and

that 74% only acted at the end of from 2 to 14 days.

But Kutwirt does not support these views. He examined 229 babies, 61 of whom were between one-half and ten hours old. After ruling out all those who were sick or who offered any possibility of inaccuracy in the findings, there were still left 111 children between the ages of one-half hour and ten weeks. The test used was made by striking a fork with a percussion hammer; 70% reacted to the test, whether awake or asleep, by showing restlessness, winking, contracting of the forehead, etc.; 48.6% of those under 24 hours old responded to the stroking of the c^1 fork and 23.3% to that of the c^2 fork. Though such tests of necessity cannot be absolute in their accuracy, the author concludes that hearing is at least as early developed as is the sight.

Occupation Deafness.—Joehne (*Archiv,* 84, 2) made tests on the entire officers' corps in a regiment of foot artillery at Strassburg. He conducted the tests several months after the last gun-firing practice of the year, that the hearing might have a chance to recover from the transitory ill-effect of the firing. 61 were so tested with results as follows: 19 showed normal hearing,—in 3 the gun practice had evidently nothing to do with the deafness,—in the remaining 39 there was a pure involvement of the cochlear nerve, unilateral in 20, bilateral in 19. Anatomically this would be a chronic degenerative neuritis. Clinically, there was damage to the perception of c^4 and c^5 without impairment of the upper tone range. Rarely an involvement of tones by octaves was present.

Otosclerosis.—A great deal has been written on the subject of otosclerosis and with the reporting of individual cases and theories together with the scientific investigation being done by a great many, particularly in Europe, we find ourselves still in the dark as to the etiology and treatment but much more conversant with the pathology. Froeschels gives "a review of recent literature" on the subject(*Zentralblatt f. Ohrenheilkunde,* Mar., 1911). Since then Politzer, Siebenmann and Manasse have contributed much to our scientific knowledge while Alexander, Denker, Hammerschlag, Bruehl, Habermann, abroad and many here, have discussed the clinical phases of the disease. In the etiology there are two main schools, the one holding that the disease is primary in the bony labyrinth, while the other claims that the middle ear plays at least a part in the pathology. In the latter group Habermann is perhaps the leader while such men as Bezold, Scheibe, Politzer, Brühl, Siebenmann, and Manasse support the former theory, and Katz, Toynbee and Schülling consider the condition to be a toxic arthritis of the stapedo-vestibular articulation. Treatment is based on according to what is considered the underlying cause in the disease's progress. A few individual references may be noted though we find ourselves forced to acknowledge that the description of this condition given nine years ago embraces the most of our clinical knowledge of the disease at the present day, and interestingly enough, Valsalva recognized the ossification of the ligumentum annulare as a cause of deafness as early as the eighteenth century.

Boncour (*Archiv,* 85, 1 and 2) working in Alexander's clinic points out that it is difficult to differentiate the middle ear from the internal ear as the original seat of otosclerosis because so many cases undoubtedly have their origin in the middle ear. Ferreri (*Archiv,* 84, p. 126) considers that otosclerosis may begin in embryonic life and suggests that treatment be based on the different causative possibilities: anti-luetic if the Wassermann reaction is positive,—anti-arthritic if there is a gouty diathesis,—diatetic if there is a glycosuria,—and by innoculation with cultures gained from the bones of rachitic children if it is rachitic in nature (in this last he reports some success and wishes to carry his investigation further).

Alt (*Archiv,* 84, 3, p. 188), in contradiction to Passow's position, claims traumatism never produces otosclerosis or aggravates the typical form. He examined 100 cases of occupation deafness in men from the blacksmith and analagous noisy trades. Vestibular symptoms were almost never found—the cochlea alone being involved. Politzer on the other hand, grants that a severe shock to the labyrinth may hasten the development of otosclerosis. Urbantschitsch thinks an injury can aggravate but not cause otosclerosis.

Brühl (*Jour. Laryng.,* June, 1911, p. 294) thinks that otosclerosis is analagous to the hereditary trait in some of the formation of osteomata, and calls attention to the fact that the relative position of the tensor tympani muscle as it passes in front of the oval window over the arciform fasciculus, and the greater motility of the anterior part of the footplate of the stapes, are factors present in all ears and hence could not be considered causes in otosclerosis.

For internal medication: Politzer recommends small doses of potassium iodide; Siebenmann uses phosphorus; and Denker (*Annals* March, 1913, p. 1) tells of success with phytin (a form of phosphorus).

(To be continued.)

Cases of Infectious Diseases reported to the Boston Board of Health for the week ending Sept. 29, 1914: Diphtheria, 48, of which 2 were non-residents; scarlatina, 34, of which 3 were non-residents; typhoid fever 14; measles, 9, of which 1 was non-resident; tuberculosis, 29, of which 1 was non-resident. The death-rate of the reported deaths for the week was 15.21.

Reports of Societies.

AMERICAN GYNECOLOGICAL SOCIETY.

THIRTY-NINTH ANNUAL MEETING, HELD AT BOSTON, MAY 19, 20 AND 21, 1914.

The President, DR. J. WHITRIDGE WILLIAMS, of Baltimore, in the chair.

(*Concluded from page 530.*)

GENERAL PRINCIPLES OF THE MECHANICS INVOLVED IN THE CAUSE AND SURGICAL RELIEF OF DOWNWARD AND BACKWARD DISPLACEMENT OF THE UTERUS.

DR. GEORGE H. NOBLE, of Atlanta, Georgia, spoke of the measurements of intra-abdominal pressure in the abdomen and vagina of normal subjects and compared the same with the tests made in cases of cystocele, rectocele and procidentia. He spoke of the anatomy, arrangements and comparison of uterine supports and the effect of force upon them, and the results of relaxation, whether due to mechanical force or inflammatory disease. He referred to the resistance offered by the pelvic organs and the pelvic floor to the force originating in the abdomen, its decrease and absolute loss following lesions of the pelvic floor. No single set of ligaments was sufficient to support the uterus, and no single operation would meet the indication of surgical repair in all cases. He described the operations suitable to various lesions and conditions.

THE CLINICAL RESULTS IN THE TREATMENT OF PROCIDENTIA OF THE UTERUS BY THE INTERPOSITION OPERATION.

DR. THOMAS J. WATKINS, of Chicago, drew the following conclusions: 1. Vesico-uterine transposition should be made before much protrusion through the vaginal orifice resulted, as the prolapse rapidly increased after this took place; the more the prolapse, the greater the dangers of recurrences following the operation. 2. Vesico-uterine transposition cured cystocele, the most important pathological feature. 3. An occasional recurrence of the uterine prolapse would occur, except in cases where the vaginal canal could be practically obliterated. This recurrence, however, was not serious, as it could be easily remedied. 4. The operative technic should be adapted to each individual case.

A STUDY OF THE END RESULTS OF INTERPOSITION OF THE UTERUS.

DR. JOHN OSBORN POLAK, of Brooklyn, New York, said that the normal supports of the uterus might be enumerated as follows: 1. The uterine ligaments, especially the utero-pelvic and utero-sacral, which maintained the cervix in its normal position. 2. The pelvic floor and pelvic fascia, which made the pelvic diaphragm. 3. The supporting action of the adjacent pelvic organs. 4. The action of the intra-abdominal pressure. And, finally, the axial relation of the uterus to the vagina.

He drew the following conclusions:—

1. That interposition should be limited to women at or past the menopause, with a relatively small uterus, and that when the procedure was elected in those still menstruating, sterilization by tubal ligation should be done at the time of the operation.

2. The cases of prolapse in which sliding took place in the postpubic cleavage plane, were not corrected by this procedure.

3. That the morbidity was wholly due to technical defects, namely, improper preparation, imperfect hemostasis, vesical injury, etc.

4. That in anteverting the uterus the anterior wall of the uterus should rest on the fascial plate just behind the pubis, the fundus should not be brought under the arch, as excessive anterior displacement not only favored recurrence, but anteflexed the uterus and interfered with drainage.

5. That the curettings from uteri about to be transposed should always be examined, as degeneration might occur, and hysterectomy was easy after this operation.

A FURTHER DEVELOPMENT OF AN ORIGINAL TECHNIC FOR SEPARATELY UNITING THE FIVE STRUCTURES INJURED IN LACERATIONS OF THE PELVIC FLOOR.

DR. BARTON COOKE HIRST, Philadelphia, said that for a number of years in his clinic in the University Hospital of Philadelphia, he had had the recently delivered women placed upon an operating table in the dorsal gynecological position and anesthetized. This had been done in different series of patients on every day of the puerperium up to the seventh. As a result of this study, embracing hundreds of patients, it was possible to state the following facts in regard to lacerations of the pelvic floor: The pelvic fascia over the levator ani muscle showed a split running parallel with the descending ramus of the pubis; the levator ani was torn loose from its attachment to the pubis and ischium, the injury began close to the bone and ran downward and inward toward the mid line of the posterior vaginal sulcus; the fascia between the levator and the deep transversus perinei showed a triangular split with the apex above.

This deep transversus perinei was torn apart in the middle line and the two halves were retracted so that there was a gap between the ends of an inch or more: the junctions of the two halves of the superficial transversus perinei and of the bulbocavernosis muscles were torn apart if the perineal body was injured, as was commonly the case in laceration of the perineum.

These facts being established, and it was only necessary to look at a sufficient number of recently delivered women to establish them, the rest of the problem was easy of solution. Such a denudation of the injured region must be made in secondary operations as to expose the component and anatomical parts, and then these component structures should be united separately at the site of the injury and restored to their original condition. But in either case the levator ani must be exposed by cutting through the pelvic fascia, under which it lay. There the belly of the muscle was attached to the portion arising from the pelvic bones; the deep transversus was brought out of its cavity, in which it had retracted, and was united in the middle line; the pelvic fascia between the levator and the deep transversus was united, and finally the perineal body was repaired.

For convenience of illustration the sutures were represented as interrupted, but as a matter of fact, the buried continuous tier catgut was used for the levator and the fascia; buried interrupted for the deep transversus and perineal body. The skin of the perineum was finally united over the catgut sutures by Michel's clamps.

PRESIDENT'S ADDRESS: HAS THE AMERICAN GYNECOLOGICAL SOCIETY DONE ITS PART IN THE ADVANCEMENT OF OBSTETRICAL KNOWLEDGE?

DR. J. WHITRIDGE WILLIAMS, Baltimore, stated that in the conversion of Cesarean section from the most dangerous operation in surgery to one whose results were so good, it was in imminent danger of being abused by "knife-loving" obstetricians, and by surgeons who knew nothing of the resources of obsterics. The early accounts of tardy operations for the removal of a dead child from an exhausted and infected woman stood in marked contrast to the first elective operation performed by Lusk in 1887, but particularly to the long series of successful operations which were afterwards reported by many of the members.

One of the most interesting phases of obstetrical history was afforded by the 51 papers upon extrauterine pregnancy. In these one could trace the evolution of a pathological curiosity into a condition of everyday occurrence.

For purposes of analysis he classified the 346 obstetrical papers into 32 groups and presented them in tabular form.

One of the most important factors in the lack of productivity was to be found in the system of medical education. Until recently university ideals were entirely lacking in the medical schools, and even now in many institutions affiliated with universities the connection was purely nominal.

How many obstetrical departments were provided with proper accommodations for a sufficient number of patients for the instruction of students, with adequately paid and enthusiastic assistants, or with suitably equipped laboratories for research work, not to mention a salary for the director in any way commensurate for the ability and efforts necessary to supervise the work in anything like an ideal manner? Real university departments were just beginning to be organized in some other branches of medicine, but he knew of none in gynecology or obstetrics.

From extensive investigation he knew that in most of the schools obstetrics was the least well cared-for department, and must ordinarily be content with what was not wanted by others, while the professor was frequently regarded by his colleagues as being engaged in an almost unworthy pursuit. No doubt some professors were poorly trained and fulfilled their obligations lightly, but he knew many who took them seriously and who felt depressed whenever they considered the status of their department and their inability to do better work. So long as such conditions existed it was scarcely conceivable that many professors would be scientifically productive or would often be able to induce promising young men to devote themselves seriously to this branch of medicine, for the few men in this country who were really doing their duty, did so with great personal sacrifices and against odds with which they should not have to contend.

A third reason for the low state of American obstetrics was that this was the only country in the civilized world in which obstetrics and gynecology were sharply divided.

While it was debatable whether a union of gynecology and obstetrics was feasible for those engaged in private practice, or would materially improve the matter in most medical schools at at present organized, there was no doubt in his mind that the professorial chairs in the university medical schools need to be filled by broadly trained scientific men, who were prepared to give their time to their duty.

THE CLINICAL MANIFESTATIONS OF DISEASE OF THE GLANDS OF INTERNAL SECRETION IN GYNECOLOGICAL AND OBSTETRICAL PATIENTS.

DR. ROBERT TILDEN FRANK, of New York, gave a summary review of the influence of the individual glands of internal secretion (exclusive of the ovary) on (*a*) the anatomy of the genital organs, (*b*) the function of the genital organs, and (*c*) the secondary sex characters.

He pointed out the differences of effect ascribable to the interaction of the various glands, the effects ascribable to the ovary, etc.

IODIN AS A STERILIZING AGENT IN SUPRAVAGINAL HYSTERECTOMY, WITH REMARKS UPON MORBIDITY.

DR. I. S. STONE, Washington, D. C., said he would not deal with the nearly perfect results of skin sterilization, but the application of iodin and alcohol to the vagina and uterine mucosa had been productive of results which appeared to approach the ideal. The patient was brought to the operating table after the proper examinations had been made which showed her condition to be satisfactory for operation. She was placed in the lithotomy position, and a 25% (1.75 iodin) diluted alcoholic tincture of iodin was applied over the genitals and introitus vaginae. The catheter was used immediately after this, and a perineal retractor introduced into the vagina and a volsellum used with which to grasp the cervix. The cervix was dilated to admit the conical nozzle of a two-ounce glass syringe. An ounce of the same 25% alcohol solution was then slowly injected into the cavity of the uterus. The fluid was not allowed to remain as low nor was great force used. After the injection the cervical canal should be again gently dilated to make sure of the discharge of the excess of the solution. Every part of the vagina was exposed, and the assistant who made this application to it made this feature of the technic an important one. The operation was preceded by a second application of iodin to the skin over the abdomen, the first having been made before the anesthetic was given. After this the operation was proceeded with as usual, and a final application of the iodin alcohol was made to the stump before closing the flaps if there was the slightest intimation that infectious matter had been handled, such as in an appendix, pus tube, etc. Finally, the iodin solution was applied over the closed abdominal incision before the usual gauze dressings were applied.

COMPLETE STERILIZATION OF THE SKIN BY IODIN.

DR. J. WESLEY BOVEE, of Washington, D.C., related that in ten instances between May 9 and June 17, 1913, scrapings were made from skin prepared by the alcoholic solution of iodin (31.2%) and then subjected to thorough scrubbing with a strong solution of hyposulphite of soda until the iodin color was gone, the patients being anesthetized at the time for operation. The technic and findings were as follows. The following four specimens were used in the tests in each of the ten cases. 1, A small amount of the solution of hyposulphite of soda was put in a bouillon tube as a control. 2. Skin scrapings two minutes after the application of the second coat of iodin were put in some bouillon in

tubes. 3, Same as 2, except scrapings were made five minutes after second painting. 4, Skin scrapings from the same field after thorough washing, scrubbing and decolorizing by the sterile hyposulphite solution.

At the end of five days' incubation for the 40 specimens from the ten patients showed absolutely no growth.

In attempting to determine whether perfect sterilization of the skin could be produced by the painting with iodin, the following technic was used in preparing the specimens for the bacteriologist. The skin was lightly painted twice (the patient being anesthetized for operation) with the iodin preparation and a strip of skin four inches by one-half to one inch was cut from the median line of the abdomen two minutes after the last coat was applied. This strip was at once dropped into a container in which was one quart of normal salt solution. Some of the same solution was previously put into a bouillon tube as a check. The tube and large container were taken to the laboratory and turned over to Dr. Briggs. In case No. 1 the iodin was of 10% strength, but in all of the other 11 it was the same as he had used for four years in surgical operations, 31.2%. The interim between the coats varied from 16 to 92 minutes and the number of experiments was 12. In the last five a vigorous culture of bacillus subtilis was rubbed into the skin, to be removed 13 to 18 hours before its removal, and the area covered with a sterile dressing until the first coat of iodin was applied. These specimens were all transported a mile and not particularly well wrapped, which might in a measure account for the contamination of the control solution in three cases.

This report showed that the salt solution containing the skin pieces was not inhibitory to bacterial growth; that the skin was sterile in practically every case, the few instances of growth being reasonably attributed to contamination, and that the bacillus subtilis was killed. The spores of this latter species were known to be remarkably resistant, being able to withstand a 1-1000 solution of mercuric chlorid for periods up to one hour. This notable resistance prompted their employment in this series of experiments. He had not been convinced that a 10% alcoholic preparation of iodin would not destroy these spores in from 2 to five minutes, even when painted on the skin. He was inclined to believe the extent of the germicidal power of the iodin depended more than a little on the manner of its application as well as upon the strength of the solution used. If the coating be made at first thick, before a thin one is allowed to dry, penetration should be deeper or the deep penetration more perfect. If a thin coating was made the skin recesses might be but partly filled, and when evaporation of the iodin had occurred a thin, impermeable barrier of iodin was left. Whether this layer was free iodin or an albuminoid he was not prepared to state at this time. He expected later to determine whether a preparation of iodin stronger than used in this work would destroy the spores of the bacillus subtilis in the skin recesses.

THE BEHAVIOR OF THE ABDOMINAL CUTANEOUS REFLEXES IN ACUTE CONDITIONS WITHIN THE ABDOMEN AND PELVIS.

DR. RICHARD R. SMITH, of Grand Rapids, Michigan, said the behavior of this reflex had been noted in 175 cases in which diseased processes existed within the abdomen. The greater part of them were acute. The results had been compared with the findings at the operation which followed. This reflex and its behavior had been a test frequently used by neurologists, and attention had been called to it in local conditions within the abdomen by several writers. The reflex was obtained by stroking the skin of the abdomen, which normally produced an almost simultaneous contraction of the rectus and oblique muscles on the corresponding side. It was common to distinguish four reflexes,—two above and two below. The reflex was very constant in healthy young people, though uncertain in very young infants and in old people or those with very relaxed or very obese abdominal walls,—exceptions which might be definitely borne in mind. In the acute inflammatory diseases within the abdomen it was common to find this reflex involved to a greater or less extent, and the test might be made use of in the diagnosis and in estimating the extent of this lesion.

He had found that in 75 cases of acute appendicitis the reflexes were more or less involved in 65. It was sometimes involved where rigidity was absent. The reflex was commonly impaired over the seat of the lesion when circumscribed, and in more extensive processes the other reflexes were also impaired. It was commonly, though not uniformly, involved in ectopic pregnancy cases. Its normal presence in cases of bowel obstruction would help to eliminate any acute infectious condition, and in the subacute infections of the pelvis he found the lower reflex almost uniformly absent. He believed that, although the test had a certain limited view, it might be of distinct advantage to the surgeon, and it was well worth his careful study.

Book Reviews.

Saunders' Question Compends. Essentials of Nervous Diseases and Insanity. By JOHN C. SHAW, M.D., late clinical professor of diseases of the mind and nervous system, Long Island College Hospital. Fifth edition, thoroughly revised by LOUIS CASAMAJOR, M.D., chief of clinic, New York Neurological Institute. 12mo., 187 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1913.

The frequent editions of these question compends show they meet a demand, however one may regard its legitimacy. This little manual contains a surprising amount of information, and a fairly careful review has shown a high degree of accuracy in statements and views. The chief failures are due to the brevity and the plan of the book, which is practically a condensation of the larger text-book descriptions of the various nervous and mental diseases.

Nasal Accessory Sinuses. Development and Anatomy of the Nasal Accessory Sinuses in Man. Based on 290 lateral nasal walls, showing the

various stages and types of development from the sixtieth day of fetal life to advanced maturity. By WARREN B. DAVIS, M.D., Corinna Borden Keen, Research Fellow, Jefferson Medical College, Philadelphia. Octavo of 172 pages, with 57 original illustrations. Philadelphia and London: W. B. Saunders Company. 1914.

This is a monograph embodying careful anatomical work based on the study of 26 embryos and fetuses and 101 post-natal heads, most of them of infants and children. It is illustrated by 57 excellent drawings which bring out clearly all important points. Using these freely to explain the text, the author describes the development of the accessory sinuses, in a manner which is easy to follow and which covers the subject thoroughly without being tedious. He frequently points out details in which he coincides or differs from other authorities, but the conclusions are derived from his own work. The book is a valuable one for any man who has any reason for being interested in the academic or the practical aspect of the nasal accessory sinuses.

Beriberi. By EDWARD B. VEDDER, A.M., M.D., Captain Medical Corps, U. S. Army, etc. The Cartwright Prize of the Alumni of the College of Physicians and Surgeons, Medical Department of Columbia University, for 1913. Illustrated. New York: William Wood and Company, New York. 1913.

The author of this monograph, published by permission of the Surgeon-General of the United States Army, was a member of the Army Board for the Study of Tropical Diseases as they exist in the Philippines, from December, 1910, to April, 1913. The book comprises the results of clinical and experimental study of the disease beriberi, as observed particularly in the Philippines. It is, perhaps, the most valuable résume of our knowledge of this disease, which has long eluded investigation, particularly on its etiological side. In general, it is an admirable critical review of the entire subject from the most modern clinical and laboratory standpoint. One of the most valuable portions of the book is, naturally, that which discusses rice and its preparation, and the chapters on the etiology, with the general conclusion that avian (polyneuritis) is the same disease as human beriberi, inasmuch as the condition is not confined to birds and man, but may be produced by a polished rice diet in a number of other animals; and, secondly, that beriberi is caused by a too exclusive diet of polished rice, or by any other diet lacking in the vitamines necessary for normal metabolism, particularly of the nervous system. The various types of the disease, as for example, infantile beriberi, ship beriberi, and epidermic dropsy, are discussed in detail. The book is admirably illustrated and concludes with an extensive, though not absolutely complete, bibliography, and an appendix summarizing historical and experimental facts. The volume brings our knowledge of this increasingly important disease up to the year 1913, and settles the main points of its etiology and dissemination.

Local Anesthesia. By DR. ARTHUR SCHLESINGER, Berlin. Translated by F. S. ARNOLD, B.A., M.B., B.Ch. Oxon. Illustrated. New York: Rebman Company. 1914.

Krohn's English translation of Hirschel's excellent German "Text-Book of Local Anesthesia" was reviewed in the issue of the JOURNAL for Aug. 20, 1914 (Vol. clxxi, p. 317). Arnold's version of Schlesinger's work presents to English readers a smaller handbook concerned rather with technic than with anatomic details. It is illustrated with 22 text cuts and should prove useful as a convenient manual for practitioners.

Mental Diseases. A Text-Book of Psychiatry for Medical Students and Practitioners. By R. H. COLE, M.D. (London), M.R.C.P., Physician for Mental Diseases to St. Mary's Hospital, etc. pp. 343. University of London Press: Hodder and Stoughton. 1913.

The scope of this work is limited to the delineation of the salient features of our knowledge of psychiatry and the author's own experience and practice is modestly sacrificed to the treatment of the subject from a general standpoint. There are few original points of view to interest the psychiatrist, but the work will undoubtedly prove to be an excellent syllabus for students who attend the author's classes. It has a distinct flavor of the old school of psychiatry. "Secondary Dementia," for example, is given a separate chapter in which various psychoses are so labelled and thus robbed of their proper title for no other reason than a modification of the symptoms of the original disease, a confusional, manic-depressive or other psychosis, thereby losing its identity and becoming "secondary dementia." One might with equal reason drop the name general paresis when terminal dementia appears in the course of that disease. Dementia precox is well sketched as to symptoms and varieties, but hardly enough stress is laid upon its tendency to progress by the way of attacks or episodes with remissions, an important point in prognosis. The latest developments in the psychology and pathology of mental disease receive due attention. There are good chapters on the legal relations of mental disease and treatment and the book is well illustrated.

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THE NEW MASSACHUSETTS COMMISSIONER OF HEALTH.

THE action of Governor Walsh in appointing to the new position of Massachusetts Commissioner of Health Dr. Allan J. McLaughlin, Surgeon, United States Public Health Service, calls forth praise from all who are in touch with the needs of the State at the present time. The Governor met ninety physicians representing the Massachusetts Medical Society, the Massachusetts Homeopathic Medical Society and the Massachusetts Eclectic Medical Society, at the Boston Medical Library, May 15, 1914, and announced then his intention of appointing as commissioner the best expert in health matters he could get, provided the proposed bill reorganizing the state board of health was indorsed by the profession and became a law. At this time it was thought that Surgeon Victor G. Heiser of the Public Health Service, stationed in the Philippines, would be available. He, however, preferred to take the lucrative position offered by the Rockefeller Institute for Medical Research, which would carry him back to Manila for the completion of work already begun, while Dr. McLaughlin, who was offered this same position, declined it and was willing to assume charge of our health problems in Massachusetts.

The State is under a debt of gratitude both to the Governor and to the public spirited gentlemen who assisted him in getting the government to grant Dr. McLaughlin a five years' leave of absence from the Public Health Service that he might serve us. We shall expect our State health department, when it has been completed by the forthcoming appointment of an advisory council of six members, to enter on a course which will add still other laurels to those obtained by the original Massachusetts State Board of Health.

Dr. McLaughlin, whose home is in Washington, D. C., is forty-two years old, is a native of London, Ontario, and was educated in the London Collegiate Institute. He moved to Detroit and became a registered pharmacist in that city in 1892. Taking up the study of medicine he was graduated from the Detroit College of Medicine and Surgery (Class A College, M.A. rating) in 1896. After practising medicine for three years in Michigan he studied for four months at the New York Polyclinic and in 1900 was commissioned assistant surgeon in the United States Marine Hospital Service in New York City, being assigned for two years to the barge office and Ellis Island stations. In May, 1902, Dr. McLaughlin was ordered to the government laboratory of hygiene at Washington. From there he went to take charge of a medical ward in the Marine Hospital in New York City. In 1903, being commissioned a passed assistant surgeon, he was ordered to Naples and then to Hamburg and Berlin to study cholera. Next he studied the plague in Trieste in the year 1906. In 1908 he was appointed assistant professor of hygiene and public health in the Philippine Medical School. During his stay in the Philippines, in addition to routine work, such as suppression of cholera, vaccination, problems of leprosy and the sanitation of Manila, Dr. McLaughlin was responsible for the following special pieces of work which have had distinct influence on health conditions: Development of the sanitary barrio; a better understanding of the significance of the bacillus-carrier in the spread of cholera: demonstration of the influence of beriberi on infant mortality; demonstration that acute meningitis credited with 4,000 deaths in ten years, was a rare disease and that most of these alleged meningitis deaths were due to beriberi, cholera and other diseases; special laboratory work on cholera, and transfusion experiments in the treatment of Asiatic cholera. He remained in the Philippines until the end of 1910, when he re-

turned to the laboratory of hygiene at Washington, having special charge of an investigation of sewage pollution of interstate and international waters with special reference to the spread of typhoid fever.

In this work Dr. McLaughlin has been engaged up to the present time, having contributed several important papers to the medical press on the topics which he has been studying. His present rank in the Public Health Service is surgeon, being outranked only by the surgeon general and by the fifteen assistant surgeon generals.

THE DIFFERENCE BETWEEN SUGGESTION AND PERSUASION IN PSYCHOTHERAPY.

The object of this editorial is not to discuss the relative merits and advisability of application of the procedures here briefly described, but merely to point out their essential qualities and their main points of difference. In general, psychotherapeutic methods are divided into three classes,—direct suggestion, persuasion, and highly elaborated psychoanalysis, the latter of which it is not our purpose to discuss at this time. It is important, in practice, to understand the differences which exist between suggestion and so-called persuasion.

Suggestion has been defined as the uncritical acceptance of an idea and its realization in action. In other words, by direct suggestion we pretend to introduce into the consciousness of the subject certain new ideas or to destroy old or existing ideas; and this, without the patient's consent or judgment. Direct suggestion, whether given in the waking state or while in the hypnotic state, is addressed to the subconsciousness of the individual, to the psychological automatism. The patient is placed in a condition of receptivity, either in the waking state, with or without any efforts at stage setting, the ticking of a metronome, crystal gazing or what not, or in the hypnotic state. The patient is not supposed to discuss anything, but, on the other hand, must, without reasoning and without any psychic reaction on his part, accept the suggestions which are directly offered him. These suggestions are chiefly put in the form of affirmations, since efforts at argumentation or demonstration would arouse the reasoning powers and excite a reaction. These affirmations are best put in the form of short sentences, the physician offering new ideas or ideas opposing the symptoms or ideas which the patient may present. The entire procedure is generally surrounded with an atmosphere of symbolism, artificiality and mystery. Auto-suggestion no doubt usually plays a prominent rôle in the results obtained.

Persuasion, on the other hand, is quite a different matter. By means of persuasion new ideas are introduced with the consent of the subject, and if, as a result of the treatment, the patient improves and gradually recovers, he does so after reflection and with more or less full knowledge of the cause. Contrary to the method by which suggestion may work, when we come to persuasion there is, as Dejerine and Gauckler (The Psychoneuroses and their Treatment by Psychotherapy, p. 283) have put it, "no more stage setting, no more drawn curtains, no more closed shutters—nothing which would be calculated to impress the patient." Here we maintain the natural conversational attitude, the old familiar manner of talking things over confidentially and fully, in which the physician must exert his good, sound common sense and his knowledge of human nature, and the patient must be willing to be frank and confidential. By persuasion we attempt to explain to the patient the true reasons for his present condition and for the various symptoms which he presents. It further endeavors to establish the patient's confidence in himself and to strengthen his self-control. An appreciation of the method by which he became ill and of the cause for his symptoms must be given to the patient so that he understands and believes. An appeal is made to his reason and will, but the patient is asked to believe what is told him concerning the genesis and evolution of his condition, concerning his mental and moral deficiencies, not as articles of blind faith but as a result of reflection and understanding.

From the above statement of these two methods so widely employed in psychotherapy, it may be noted that suggestion tends to restrict the personality; it does not treat man as an intelligent, rational, mature, thinking, self-willed human being; it does not show him that he is a free human being, responsible, powerful, independent, self-sufficient. Suggestion tends rather to make the patient dependent, and its curative results are comparatively temporary, with a tendency toward relapse. Persuasion, on the other hand, permits the personality to develop, gives

an opportunity for the exhibition of will and independent action, for the development of self-confidence, for the means of getting well through one's own efforts, and for an actual cure. If the patient has been treated wisely and efficiently by persuasion, once cured, he may be trusted to care for himself with a feeling of safety, of confidence in his own powers and an assurance of greater self-sufficiency. Both of these methods find their field of application. Persuasion is, of course, always the more desirable procedure. But there are certain patients with whom this method cannot be used, and suggestion should be employed. The physician should, however, use these methods only with a thorough understanding of the manner in which they produce their respective results.

PROGRESS OF RELIEF ACTIVITIES IN THE EUROPEAN WAR.

THE American hospital relief ship, *Red Cross*, which sailed on Sept. 30 from Falmouth, England, arrived on Oct. 1 at Pauillac, France, where the units detailed for service in that country were landed. Thence the ship sailed for Rotterdam, where she arrived on Oct. 6 and landed the German and Austrian contingents, together with 40 tons of medical and surgical supplies for Belgium. The Russian unit of the American Red Cross reached London from Falmouth on Sept. 30, and on Oct. 2 left by train for Dundee, Scotland, whence it embarked for Bergen, Sweden, aboard the *Balder*. From Stockholm it will proceed by rail to Petrograd. Of the two units which remained in England, one, under Dr. Howard Beal, of Worcester, Mass., has been assigned to the American Woman's Hospital near Torquay, Devonshire; the other, under Dr. Robert W. Hinds, of Buffalo, N. Y., to the Royal Military Hospital at Netley, near Southampton, Hampshire. The Servian unit under Dr. Edward W. Ryan, which sailed from New York aboard the Greek ship *Ioannina* on Sept. 9 reached the Piraeus, Athens, on Oct. 2 on its way to Nish.

On Sept. 25, the American Red Cross issued at Washington, D. C., the following statement of its receipts and expenditures to date in fitting out the first relief expedition.

"Transportation of 171 surgeons and nurses from their homes to New York, by sea to Europe, by land from ports of debarkation to destinations in England, France, Germany, Austria, Russia and Servia, outfits of uniforms and personal equipment, subsistence, salaries for six months and return to the United States; also transportation by sea and land of 35 carloads of hospital and surgical supplies, $200,000.

"Purchase of hospital and surgical equipment and supplies, $40,000.

"Special funds given for transmission to specified European Red Cross societies and other especially indicated purposes, $40,000.

"Approximate total of expenditures already made and obligations incurred, $280,000.

"Total receipts to date for war relief fund about $332,000.

"It is apparent the American Red Cross will be able to accomplish little more than already undertaken unless a large amount of additional contributions are received."

On Oct. 2 the Massachusetts Red Cross Fund reached a total of $24,815.18, and the New York fund a total of $184,830. The fund for the American Ambulance Hospital, at Neuilly (Paris) amounted on that date to $58,986. On Sept. 30 seven young volunteer American surgeons sailed from New York aboard the *Adriatic* for field service as members of the Neuilly Hospital Corps. American women resident in London have presented the British government with six motor ambulances for use on the continent. Report from Madrid on Sept. 27 states that the Spanish government has offered accommodation for 30,000 wounded soldiers of all nations.

"The Hungarian Red Cross Society, whose aim has always been to keep itself in constant readiness to take the field, issued shortly before war broke out a circular in which it was stated that in the event of war Hungary would probably find herself responsible for 100,000 wounded and 250,000 sick soldiers, many of whom would be Hungarian subjects. The circular further stated that it had been estimated that, in addition to those of the military nurses, the services of some 7,000 civilian nurses would be required to meet this sudden demand: and since the number exceeded the total number of trained nurses throughout the whole of Hungary, it was obvious that it could not be recruited from the ranks of the nursing profession alone. Even when the country was at war the work in the general hospitals would have to be carried on as usual, and if, as was quite likely, an epidemic broke out, would become considerably heavier: it was therefore a matter of necessity to obtain the assistance and coöperation of all women who were willing to offer their services as nurses in time of war. The response to this appeal was both prompt and gratifying. In almost every town in Hungary courses of lec-

tures were at once organized, and held in the wards of the local hospitals, and at the conclusion of each course the candidates were examined in the presence of a delegate of the Red Cross Society and other civil and military authorities."

The outbreak of Asiatic cholera in Hungary is fraught with the most serious medical possibilities of any event since the beginning of the war. Report from Budapest states that 15 new cases were discovered in that city on Sept. 28. Unless this outbreak can be immediately controlled, there is grave liability of its spread to all armies in the field, and, through neutral shipping, to foreign ports in non-combatant countries. In New York on Sept. 29 the following precautionary measures were taken:—

"In a special order to boarding officers, Dr. Joseph O'Connell, health officer of the port of New York, instructed them to make the most rigid examinations of all vessels, passengers, and crews coming from ports on the Adriatic Sea east of the Italian boundary, on the Ionian Sea, the Aegean Sea, the Mediterranean east of Italy and the Black Sea. Dr. O'Connell was advised by cable that similar precautions against those ports had been taken by the Italian Government."

The Boston Health Commissioners issued on Sept. 30 the following statement of their similar provisions:—

"In Boston the Health Department has all the facilities for the examination, treatment and care at Gallups Island of all immigrants that may come from cholera-infected ports. This was shown about three years ago, when immigrants from Southern Europe were detained in numbers as high as 1200, examined, housed and fed until result of examination was known by our laboratory."

"So thorough and expeditious was this work that the department earned the praise of the steamship companies, the Italian Government, and the United States Public Health Service. Consequently, Boston seems well prepared to do this work again, and there need be little fear of the entrance at this port of anybody suffering with this disease."

CONTINUOUS SERVICES AT THE BOSTON CITY HOSPITAL.

The Boston City Hospital, after a certain amount of experimenting in connection with the surgical services and the gynecological service, has finally adopted the principle of continuous services throughout the institution. This unquestionably marks a step in progress. Following the example of teaching hospitals in other cities, the Massachusetts General Hospital within a few years, has adopted the principle of continuous services and the two Brigham Hospitals recently opened in this city have likewise adopted a similar principle of medical management. The organization of the medical services at the City Hospital will be precisely the same as that at the Massachusetts General Hospital, namely, a chief of service on duty throughout the year, two physicians each with six months service and various subordinates with terms of service not strictly determined by the hospital rules. Owing to the large number of patients, the three medical services into which the hospital has previously been divided, will be regrouped into four services. Of these services, the fourth will be a continuous teaching service for the Harvard Medical School, and Tufts Medical School has the privilege of taking over one of the other three services on the same basis if it so desires. Apart from the better supervision of patients, the continuous service plan affords decidedly increased facilities for teaching. It is proposed, so far as the Harvard Medical School is concerned, that, throughout the year students be assigned to the service for a period of two months as clinical clerks. They will work in the wards from nine until five daily, under the supervision of an instructor in the department of medicine. The hospital is to be congratulated upon taking this action. Experience seems definitely to have shown that more efficient work, both for the patients and in medical teaching, may be accomplished by a system which concentrates responsibility upon one person, rather than dividing it among several, as happened under the old system of divided services.

THE TELEPHONE.

It is a self-evident fact that the telephone has come to be a necessity and particularly to physicians. It is also true that not infrequently its very usefulness becomes a source of extreme annoyance through what appears to be, and at times is, bad service on the part of the company. Like many complicated affairs, it is clear that a considerable misunderstanding exists on the part of the telephone company as to the absolute importance of prompt, courteous and wholly efficient service and, on the other hand, that persons using the telephone are peculiarly prone to criticize, and often with insufficient knowledge of

the facts and of the difficulties to be met. Such misunderstandings should be minimized and, to this end, it is desirable that visits be made by physicians and others interested to telephone exchanges in order that some more definite idea of the actual working of the telephone system may be acquired. To this end the telephone company for the benefit of all concerned, has set October sixteenth as a special day when physicians will be welcomed at the Back Bay exchange, which is said to be the largest in this country and is also the exchange perhaps most used by physicians, for the purpose of inspecting the system employed, in the hope that a better understanding may be secured between the company and its subscribers. We urge our readers to make use of this opportunity for their own instruction and also for the purpose of suggesting such criticisms as may lead to an improvement of the general service.

MEDICAL NOTES.

ANTI-TUBERCULOSIS FALL CAMPAIGN.—Four Sectional Conferences on tuberculosis will be held in various parts of the country during the months of October and November under the direction of The National Association for the Study and Prevention of Tuberculosis, according to an announcement from the headquarters of that organization today.

These Conferences, designed to stimulate the war against tuberculosis in the sections which they serve, will be held in St. Louis, Mo., on October 6, 7, and 8; in Philadelphia, Pa., on October 16; in Bangor, Me., on October 22nd; and in Atlanta, Ga., during the last week in November. Prominent anti-tuberculosis workers from all parts of the country will address the various conferences. Among the principal subjects to be discussed at all the conferences are the Red Cross Seal campaign, the advantages of local hospitals for the care of consumptives, the home treatment of the tuberculous, and legislative problems.

In the official announcement relative to these conferences, Dr. Charles J. Hatfield, executive secretary of the National Association says: "These four conferences are in fact the mobilization of those who are engaged in the war against tuberculosis for the coming fall and winter campaign which we are planning to wage against this disease. In almost every state of the Union, active movements against tuberculosis will be forwarded during the next six months. We hope at these conferences to discuss ways and means and to secure the support and enthusiasm which will enable us to attack our individual problems more successfully than we could do otherwise."

BEQUEST TO A MEDICAL SCHOOL.—The will of the late Liberty E. Holden contains a legacy of nearly $1,000,000 to the Medical School of Western Reserve University, to be known as the Albert Fairchild Holden Foundation.

TYPHOID INCIDENCE IN AUGUST.—During the month of August, 1914, there were 57 cases of typhoid fever in the District of Columbia, 265 in Kansas, 49 in Louisiana, 293 in Maryland, exclusive of Baltimore, 284 in Michigan, 328 in Minnesota, 179 in New Jersey, 231 in South Carolina, 821 in Virginia, and 43 in Wisconsin.

ASSOCIATION OF MILITARY SURGEONS.—The twenty-third annual meeting of the Association of Military Surgeons of the United States was held at Cincinnati, Ohio, from Sept. 29 to Oct. 1. Dr. Jefferson R. Keane was elected president for the ensuing year.

IMPERIAL CANCER RESEARCH FUND.—The recently published twelfth annual report of the British Imperial Cancer Research Fund records the work and progress under this foundation for the year ended June 30, 1914. During this period investigations have been conducted into spontaneous animal tumors, heredity, the constancy and variability of tumor-cells, sarcoma, development, resistance, and specific properties of tumor cells. A considerable portion of the document is devoted to a special report by the director, Dr. E. F. Bashford, on cancer areas and cancer houses.

BUBONIC PLAGUE IN SICILY.—Report from Catania, Sicily, on Sept. 25 states that seven deaths from bubonic plague have recently occurred in that city.

POLIOMYELITIS IN AUGUST.—During the month of August, 1914, 12 cases of poliomyelitis were reported in Virginia, 7 in Michigan, and 3 in Wisconsin.

SCULTETUS ON GUNSHOT WOUNDS.—At the present time the following translation of a passage from Scultetus's *Armamentarium Chirurgici*, written in 1672, is of special interest as illustrating the seventeenth century method of treating gunshot wounds:—

"In the year 1634 Johannes Philippus Schmid, captain of the watch at Ulme, was wounded with a bullet through the shoulder in the battel near Nordingen; and coming to Ulme fell into the hands of an unskilful chyrurgion, who kept open the orifices of the wound, not with tents but with a seton passed through, which caused so great a pain that a gangrene followed upon the inflammation; to whom coming by chance, I presently removed the seton and applied a cataplasm made of the meal of mallows and rose-water, and keeping his belly open with a lenitive glyster, for revulsion sake,

I took away seven ounces of bloud from his left arm, which was bilious and serous; and the next day the gangrene amending, the patient took a potion to purge choler, which gave him ten stools. The ingredients of the potion were syrup of roses, extract of rhubarb, diacarthamum, magistery of tartar, and 'burrage water.' The slough separated, and the wound healed. The wonderful efficacy of this cataplasm, the patient being recovered, thinks he can never enough commend, and ascribeth to it the sole preservation of his arm."

BOSTON AND NEW ENGLAND.

TYPHOID FEVER IN MANSFIELD.—Report from Mansfield, Mass., on Sept. 27 states that over 15 cases of typhoid fever have occurred recently in that town. The source of the infection has not been determined.

POLIOMYELITIS IN VERMONT.—Report from Burlington, Vt., on Sept. 26, states that since Aug. 15 there have been 37 cases of poliomyelitis in that city, 40 in the neighboring town of Barton, and scattering cases in other localities, making a total of 140 throughout the state. In 1913 there were 47 cases and in 1912 only 13.

MILK AND BABY HYGIENE ASSOCIATION.—Of the sum of $8000 asked to enable the continuance of the fall work of the Boston Milk and Baby Hygiene Association, $4217.21 have thus far been subscribed. Further contributions are urgently desired.

CHILD STUDY IN MANCHESTER.—The city of Manchester, N. H., has been selected by the Children's Bureau of the United States Department of Labor, for intensive study into the conditions of child life.

BOSTON INFIRMARY DEPARTMENT.—The recently published seventeenth annual report of the Boston Infirmary Department records the work of that organization for the year ended Jan. 31, 1914. During this period, 1452 new inmates were received at the Long Island Hospital and 57 at the Charlestown Almshouse. Fifteen nurses were graduated from the hospital training-school. In view of the projected transfer of the Charlestown institution to Long Island, few repairs have been made to the former buildings. At Long Island, however, considerable new construction is in progress or already completed. In his special report, the secretary of the visiting medical staff writes of this progress as follows:—

"Since the writing of our last report, additions to the hospital buildings, which were then in contemplation, have been begun, and when completed, the added facilities long needed will unquestionably result in more adequate service. As in all public institutions, the tendency at Long Island has been for the demand to outstrip the supply, with the result that for many years there has been overcrowding with consequent disadvantage to the patients. This will no doubt at least temporarily be rectified when the new buildings are in operation, and the hospital, now with a long and creditable past, may be expected to accomplish still more definite results in the future. With the natural growth of the city and the increasing tendency on the part of the people to seek hospital treatment, the institution will doubtless need further additions in the future, but the experience gained by the building at present going on will serve to render future problems less difficult of solution than the present expansion has been."

NEW YORK.

THE TRAUMA OF PEACE.—The Public Service Commission reports that during the year ending June 30, 1914, there was a decrease of over 72% in passengers killed on steam railroads in New York State, as compared with the preceding year. The decrease in passengers injured was 46%. Unfortunately, the commission says, no figures are available as to the number of passengers carried within the state, these reports being made for entire rail systems within and without the state, but the fact that but fourteen persons met death, of all the vast numbers which must have been carried during the year, speaks well for the safety of railroad travel in the state. Casualties among railroad employees also show a gratifying decrease, but their number is still very large: 196 were killed and 3,022 injured, as against 250 killed and 3,760 injured during the preceding year. The only class of railroad fatalities showing an increase is that among trespassers, and a very large proportion of these fatalities was at grade crossings. Of trespassers, 348 were killed, as against 393 the year before. There was a decrease of 14.9%, however, in the injured.

TWO CENTENARIANS.—Micajah Weiss, believed to be the oldest man in New York State, and perhaps in the country, died at his home at Beaver Brook, Sullivan County, on Sept. 24, at the alleged age of 114 years. He is said to have been born in 1800 at Dancing Creek, Pa. He served in the army during the Civil War, and is stated to have been, at the time of his death, the oldest veteran on the pension list.

MORTALITY FOR WEEK ENDING SEPTEMBER 26, 1914.—The mortality during the week just closed was a shade below that of the preceding week, the most noteworthy cause of the slight decrease being a considerable drop in the mortality from diarrheal diseases of children under five years of age. A comparison with the mortality of the corresponding week of 1913 shows a large decrease in the mortality of infants under

one year of age and also between the ages one and five. On the other hand, the mortality at all age groups over twenty-five years was considerably above the figures of 1913. The mortality from the infectious diseases of childhood was on the whole considerably below, while that from the organic heart and kidney diseases and pulmonary tuberculosis, causes affecting adults and old people was considerably above that of the corresponding week in 1913.

There was only one death charged up against whooping cough during the past week, as against eleven for the corresponding week in 1913. Organic diseases of the heart, pulmonary tuberculosis, Bright's disease and nephritis, diseases which affect adult life and old age showed an increase of 51 deaths. The number of deaths reported from violence was 114, an increase of 34. This increase was distributed among the accidents, homicides and suicides. The homicides showed an increase from three deaths in the week of Sept. 27, 1913, to fourteen deaths during the past week; suicides almost doubled in number, while accidental deaths increased twenty per cent.

The death-rate for the entire year from the first of January to date was 13.90 per 1000 of the population as compared with a rate of 14.15 for the corresponding period in 1913, a decrease of .25 of a point.

TRAVEL STUDY CLUB.—The Travel Study Club of American Physicians, which made a successful Study Tour of Europe last year, has completed the plans for its 1915 Study Tour to the A. M. A. meeting in San Francisco, Honolulu, Japan, the Philippines, China, with optional return via Siberia and Europe (war permitting) or via Canada. This being the first party of American physicians ever visiting the Far East and the new possessions of the United States, a most cordial welcome can be expected by authorities and members of the medical profession. Dr. Richard Kovacs, secretary-treasurer, 236 East 69th street, New York.

HEALTH DEPARTMENT APPROPRIATION.—While the aggregate of the appropriations asked for in the city budget for 1915 is smaller than for any year since 1910, increased amounts will be required for some of the departments. One of these is the health department, which has applied for a considerable increase, to provide for additional medical inspectors and nurses for the public school work, surgeons and dentists for the department's clinics, inspectors for children in charitable institutions, and food and sanitary inspectors. The Bureau of Child Hygiene has asked for an increase for the purpose of establishing a number of additional infants' milk stations needed in the different boroughs.

FIREPROOF CLOTHING FOR CHILDREN.—On a single day, recently, Dr. Charles F. Pabst, coroner's physician, Brooklyn, was called in no less than five cases of children, in different localities, who died as a result of burns from bonfires or from playing with matches. Dr. Pabst suggests that parents fireproof the cowboy and Indian suits so much in vogue, the fringes of which are constant sources of danger from fire; and also fireproof lace curtains and other hangings liable to be ignited by children playing with matches at home. This, he says can be done by a very simple, cheap and efficient method: The articles to be rendered fireproof are to be dipped in a solution of a pound of ammonium phosphate (costing perhaps 25 cents) in a gallon of water, and the solution is entirely harmless as regards both the child and material washed.

Current Literature

MEDICAL RECORD.

SEPTEMBER 19, 1914.

1. *HERTOGHE, E. *Thyroid Insufficiency.*
2. RICKETTS, B. M. *Intratracheal Insufflation.*
3. USSHER, C. D. *An Epidemic of Typhus Fever in Van, Turkey.*
4. DABNEY, V. *Diabetes Mellitus Following Interval Operations of Bilateral Mastoidectomy and Unilateral Exenteration of Ethmoid, Sphenoid and Maxillary Sinuses.*
5. KAHN, A. *A Modification of the Crile Cannula.*

1. Hertoghe writes a very interesting paper on thyroid deficiency, illustrated with many photographs. Thyroid secretion, he says, is necessary to the building up and dismantling of the tissues. All infections, especially rheumatic, luetic and tuberculous, affect the vitality of the thyroid gland and may produce varying degrees of myxedema in addition to their specific lesions. A course of treatment with thyroid extract will sometimes relieve to a surprising extent such symptoms as alopecia, biliary disturbances, vertigo, migraine, myalgia, constipation, nocturnal incontinence. Thyroid treatment is necessarily slow. The writer recommends the administration of thyroidin in 5-grain doses. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

SEPTEMBER 19, 1914.

1. *VEGAS, M. H. *Hemophilia and Hemophiliac Arthritis.*
2. ELSNER, H. L. *Pains Anomalously Distributed in Cardiovascular Disease.*
3. HOLDING, A. F. *The Treatment of Cancer by Electrical Methods.*
4. FOSTER, G. S. *An Interesting Case of Hermaphroditism.*
5. PENROSE, C. A. *Efficiency and the Quality of Life.*
6. FISHBERG, M. *Tuberculization and Immunization.*
7. BRAM, I. *The Treatment of Sunstroke and Heat Prostration.*
8. GUTHRIE, J. A. *Dust.*
9. BURNHAM, A. C. *Pulmonary Tuberculosis Complicating Operation for Appendicitis.*
10. ROSENBLOOM, J., AND GARDNER, W. E. *Tyrosin Crystals in the Urine of a Normal Pregnant Woman.*

1. Vegas discusses hemophilia and hemophiliac arthritis. He believes that surgical operations can safely be performed on bleeders if several subcutaneous injections of fresh rabbit serum are given beforehand. He cites a case from his clinic in Buenos Aires—that of a boy, seven years old, who was completely cured of an hemorrhagic arthritis after four months serum treatment. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

SEPTEMBER 12, 1914.

1. *BILLINGS, F. *Focal Infection: Its Broader Application in the Etiology of General Disease.*
2. *ROSENOW, E. C. *The Newer Bacteriology of Various Infections as Determined by Special Methods.*
3. *REHFUSS, M. E., BERGEIM, O., AND HAWK, P. H. *Gastro-Intestinal Studies. II. The Fractional Study of Gastric Digestion, with a Description of Normal and Pathologic Curves.*
4. TYSON, H. H., AND SCHOENBERG, M. J. *Experimental Researches in Methyl Alcohol Inhalation.*
5. HENSON, G. E. *A Study of the Arneth Formula.*
6. CLARK, W. L. *The Desiccation Treatment of Congenital and New Growths of the Skin and Mucous Membranes.*
7. BARKER, L. F. *The Diet in Typhoid Fever.*
8. COLEMAN, W. *The Effects of Food on Metabolism in Typhoid Fever.*
9. WILLIAMS, G. H. *The Psychosis Occurring During the Course of Pernicious Anemia.*
10. WILDER, R. M. *The Bacteriology of Typhus Fever.*
11. ALLEN, F. M. *Studies Concerning Diabetes.*
12. AUSTIN, J. H., AND MILLER, T. G. *The Influence of Sweat Baths on the Non-Protein Nitrogen Content of the Blood in Nephritics.*
13. CHACE, A. F., AND FINE, M. S. *The Use of Atophan and Radium Emanation in the Treatment of Gout and the Arthritides.*

1. Billings makes a strong plea for the location and removal of focal areas of infection in the treatment of all chronic systemic diseases and even in certain cases of thyroiditis, pancreatitis, peptic and duodenal ulcers. He believes this is a much neglected but extremely important part of our attack on these conditions.

2. Rosenow describes his method of obtaining cultures from tissues and states that by this method cultures of many different forms of bacteria may be obtained which were sterile when the older methods were tried.

3. These workers in a very interesting article show how a stomach tube of special construction can be left in for four hours, and samples of digestion at different stages be drawn off at will and studied. They have constructed curves illustrating normal and pathologic digestion and show the inaccuracy of the older method of doing gastric analyses, when only one specimen was taken during the digestion cycle. [E. H. R.]

SEPTEMBER 19, 1914.

1. *WILLSON, R. N. *The Heart in the Pneumonias.*
2. DAVIS, J. S. *The Use of Small Deep Skin Grafts.*
3. THOMSON, C. *Intrinsic Cancer of the Larynx. Complete Excision Apparently Effected by Endolaryngeal Operation.*
4. SWEITZER, S. E. *Sarcoid of Boeck.*
5. *HEAD, G. D. *Neurasthenia and Tuberculosis (Concealed).*
6. *HEYN, L. G. *Intrarectal Administration of Sodium Salicylate in Acute Rheumatic Fever with Satisfactory Results.*
7. HESS, A. F. *The Use of a Series of Vaccines in the Prophylaxis and Treatment of an Epidemic of Pertussis.*
8. STONE, W. J. *A Note on the Preparation of Bacterial Vaccines.*
9. MCGRATH, B. F. *Cancer of the Prostate.*
10. THOMAS, T. T. *A Common Mechanism for Most Injuries of the Shoulder Region, Supported by the Results of Treatment, Including Forty-Nine Operations.*
11. DIXON, S. G. *A Substitute for Potassium Permanganate to Liberate Formaldehyd Gas from a Water Solution.*
12. DAY, J. L. *Foreign Bodies in Stomach. Report of an Unusual Case.*
13. PARKER, C. A. *Fracture of the Femur into an Actively Tuberculous Knee-Joint, with Healing of the Fracture.*
14. DERMODY, L. A., AND MCMARTIN, C. *A Case of Sporotrichosis.*
15. MOTT, W. W. *Report of a Case of Cerebral Hemorrhage.*

1. Willson has made a careful microscopic study of the heart muscle in cases of fatal pneumonia and finds evidence of toxic influence in every case, evidenced by diffuse myocarditis, cloudy swelling and often fragmentation of muscle fibers. Such hearts invariably show some degree of pericarditis, but rarely of fresh endocarditis. The author thinks the systolic blood-pressure furnishes a very unreliable prognostic index, and the effort should be made to avoid cardiac depressants, such as nitroglycerin and alcohol.

5. Head, in a paper well illustrated by cases seems to demonstrate that many cases of so-called neurasthenia are in reality a chronic concealed tuberculous toxemia exhibiting neurasthenic symptoms.

6. Heyn advocates the intrarectal administration of the salicylates in doses of 24 grams in 24 hours in cases of acute articular conditions. The rectum is tolerant of the drug, and any excess can be easily washed out, so as to prevent absorption. [E. H. R.]

SEPTEMBER 26, 1914.

1. *ANDREWS, E. W. *Chondrectomy or Operative Treatment of Bronchial Asthma.*
2. *CORNER, E. M. *The Surgery of the Knee-Joint.*
3. SALANT, W. *The Pharmacology of Sodium Tartrate.*
4. DRAPER, J. W. *Studies in Intestinal Obstruction, with a Report of Feeding Heterologous Jejunal and Iliac Cells to a Human Being.*
5. *LUND, F. B. *Rovsing's Operation for Congenital Cystic Kidney.*
6. *SILER, J. F., GARRISON, P. E., AND MACNEAL, W. J. *Further Studies of the Thompson-McFadden Pellagra Commission. A Summary of the Second Progress Report.*
7. *LAVINDER, C. H., FRANCIS, E., GRIMM, R. M., AND LORENZ, W. F. *Attempts to Transmit Pellagra to Monkeys.*
8. VOEGTLIN, C. *The Treatment of Pellagra.*
9. WEBB, G. B., AND GILBERT, G. B. *Immunity in Tuberculosis. Further Experiments.*
10. KAUFMANN, J. *Lymphocytosis as a Sign of Constitutional Derangement in Chronic Diseases of the Digestive Tract.*
11. MILLER, J. L. *The Specific Action of Salicylates in Acute Articular Rheumatism.*
12. MAHONEY, J. J. *Artificial Pneumothorax and Pregnancy.*
13. EINHORN, M. *Intestinal Stasis.*

1. Andrews describes the technic of the operation of chondrectomy for the relief of bronchial asthma and states that in the type of barrel-shaped rigid chest, with little or no expansion, this gives instantaneous relief and can be done painlessly under local anesthesia.

2. Corner advocates the median longitudinal splitting of the patella through a corresponding longitudinal incision in the skin in exploratory operations on the knee joint. His article on this joint is of practical interest.

5. Lund's paper is a very thorough review of the subject of congenital cystic kidney and a description of Rovsing's puncture operation, which generally causes death or gives great relief.

6. This report states that no definite connection between occupation and the occurrence of pellagra has been found although the high morbidity in women and children points to the home as the place in which the disease is usually contracted. Evidence of close association with a pre-existing case was disclosed in more than 80%. No relation to the dietary in 50,000 people living in six endemic foci of the disease could be found. New cases originated almost exclusively in a home in which a pre-existing pellagrin was living. The disease has spread most rapidly in districts where unsanitary methods of sewage disposal have been in use. Additional evidence has been obtained to support the view that flies of the genus simulium have nothing to do with pellagra. There is no evidence of inheritance of pellagra. The immediate results of hygienic and dietetic treatment in adults have been good, but after returning to former conditions of living most of the cases have recurred.

7. These authors advance no definite conclusions from their work. [E. H. R.]

JOURNAL OF INFECTIOUS DISEASES.

JULY 1, 1914.

1. *FRANCIS. *An Attempt to Transmit Poliomyelitis by the Bite of the Lyperosia Irritans.*
2. *KOLMER AND BROWN. *Complement-Fixation in Gonococcus Infections.*
3. HORTON. *A Simple Method of Cultivating Bacilli, Preferring Conditions of Partial Anerobiosis.*
4. BEHRENS. *An Attenuated Culture of Trypanosoma Brucei.*
5. *HOPKINS AND LANG. *Classification of Pathogenic Streptococci by Fermentation Reactions.*
6. *DICK AND HENRY. *Anerobic Cultures in Scarlet Fever.*
7. ROGERS, WILLIAMS AND EVANS. *The Classification of Bacteria of the Colon Type Found in Bovine Feces.*
8. GURD. *The Toxins of Intestinal Obstruction.*
9. THEO. *Experiments on the Variability of the Fermentative Reaction of Bacteria, Especially the Streptococci.*
10. CAPPS AND DAVIS. *The Relationship of Septic Sore Throat to Infected Milk.*
11. DAVIS AND CAPPS. *Experimental Bovine Mastitis Produced with Hemolytic Streptococci of Human Origin.*
12. RAHE. *An Investigation into the Fermentative Activities of the Aciduric Bacteria.*
13. WEIL AND MCMEANS. *Purpura Associated with Bacillus Mucosus in the Blood.*
14. *MANHEIMER. *Studies on the Sanitation of Swimming Pools.*
15. *CUMMINGS. *The Quinine Treatment of Rabies.*
16. *KLIGLER. *Studies on the Classification of the Colon Group.*
17. HOLMAN. *A Method of Making Carbohydrate Serum Broth of Constant Composition for Use in the Study of Streptococci.*
18. *MOORE. *The Action of Vaccines and of Concentrated Antistreptococcus Serum in Experimental Streptococcal Arthritis.*
19. HOLMAN. *The Use of Decolorized Acid Fuchsin as an Acid Indicator in Carbohydrate Fermentation Tests, with Some Remarks on Acid Production by Bacteria.*

1. Francis was unable in eight attempts to transmit poliomyelitis through the medium of the Lyperosia Irritans, a fly commonly found upon cattle in the South. The experiments were conducted in a similar way to those performed by Rosenau and Brues upon Stomoxys calcitrans, but negative results followed every exposure of Macacus rhesus monkeys to these supposedly infected flies.

2. The gonococcus complement-fixation reaction, while not so clearly defined, nor so reliable as that of syphilis, is of value as a diagnostic measure in pelvic inflammations, arthritides of doubtful origin, and as a control to late treatment of chronic urethritis. A polyvalent saline suspension is best used in connection with the anti-human hemolytic system.

The study of anti-gonococcus and anti-meningococcus sera shows a much more striking "group" reaction than exists with the micrococcus catarrhalis or any other organism.

5. By means of fermentation reactions, Hopkins and Lang divide the streptococci into two chief divisions—the .pathogenic and saprophytic streptococci The former are characterized by fermentation of lactose and salicin. Into the latter group fall four salivary types, the fecal group and the equine group. The amount of acid production is of little value in classification. The hemolytic action is, however, of service, since it is found that the highly pathogenic strains are usually strongly hemolytic.

6. Dick and Henry, studying the bacterial content of the blood in scarlet fever, obtained positive findings by means of anerobic cultures in 20 of the 24 cases investigated. Nine types of organism are described. The association of various organisms in blood culture with those found in the throat and urine leads to the conclusion that during the acute stage of scarlatinal angina organisms enter the blood stream in considerable number.

14. Manheimer has investigated the sanitary conditions of the swimming pools of New York City. The Collegiate and Association pools were found to be generally in good condition. Such was not the case, however, with the public pools and the free floating baths. The sanitation of the latter was so poor that their abolition was advised.

Recommendations for the improvement of public baths include better construction, filtration and change of water, disinfection and improved administration of establishments.

15. Cummings was unable to demonstrate that quinine showed the least protective power against extremely small doses of rabies virus. Assuming that the amount of virus in infected man is probably far greater, he concludes that the use of this drug will be of no practical value.

16. By means of carbohydrate fermentative reactions Kligler has divided the colon group of bacteria into divisions, all of which are represented by well-known bacilli. The classification is submitted as tentative, since the number of organisms studied is relatively small.

19. In no instance could Moore demonstrate a prophylactic or curative action of concentrated antistreptococcus serum toward experimental streptococcal arthritis. Prophylactic injections of homologous streptococcus vaccine, on the other hand, either prevented any such pathological process, or attenuated the course of the disease and decreased the frequency of complications. This immunity, which is evidently dependent on the production of opsonins, was of long duration. [L. H. S.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 28. JULY 9, 1914.

1. WELTMANN, O. *The Importance of Blood Dust Clinically.*
2. *BOLTEN, G. *The Value and Treatment of So-Called True Epilepsy.*
3. NEUGEBAUER, H. *Vagotomy.*
4. KELLING, G. *Rocntgcnoscopy of the Stomach.*
5. GOLDSCHMIDT, W. *Treatment of Gas Bacillus Infection.*
6. PAUL, E. *Short Communication on Case Histories of Foreign Bodies in the Air Passage.*

2. The author limits "true epilepsy" to those cases in which there is no demonstrable cause. He concludes that these are due to autointoxication from defective ferment processes in the intestine and defective functioning of the thyroid and parathyroid glands. He treats his cases by supplying the active principles of these glands. He cites cures of many cases without detail. [F. S. K.]

No. 29. JULY 16, 1914.

1. ARZT, L., AND KERL, W. *Communication Regarding Spirochete Findings in Rabbits.*
2. SZEL, P. *Alimentary Glycosuria in Basedow's Disease.*
3. SAPHIR, J. *Abortive Treatment of Syphilis.*
4. BARSONY, T. *Diagnosis of Post-operative Ulcer after Intestinal Anastomosis.*
5. FELDNER, J. *Severe Phthisis under "Tuberculomuzin Weleminsky."*
6. MELIKJANZ, O. *The Results of Abdcrhalden's Dialysis Tests with Animal and Human Lung Tissue.*

No. 30. JULY 23, 1914.

1. SAVAS, C. *Cholera Inoculation in Greece.*
2. BIACH, P., KERL, W., AND KAHLER, H. *Changes in Spinal Fluid after Neosalvarsan.*
3. SCHWARZMANN, J. *Diastolic Blood-Pressure in the Diagnosis of Disease of the Aorta.*
4. HENZELMANN, A. *The Stimulation of the Phrenic Nerve by the Faradic Current and the X-ray Appearances During This.*
5. *CECIKAS, I. *The Influence of Nephritis on Procreation.*

5. The author believes nephritis is a cause of relative sterility. Only eight of his twenty-eight married women with nephritis had healthy children. Five patients never became pregnant and the rest aborted. [F. S. K.]

Miscellany.

ORCADIAN OBSTETRIC CUSTOMS.

IN the January number of *Old Lore Miscellany of Orkney,* quoted in the issue of the *British Medical Journal* for May 9, 1914, is an article by Mr. John Firth on Orcadian obstetric customs, actually observed within the memory of persons still living.

"The chief care of an Orcadian mother and her attendants at such a time seems to have been to preserve the newborn baby from the unwelcome attentions of 'peerie-folk' or fairies, who were always on the lookout for a human child to kidnap or bewitch. To frighten them away, therefore, the mother kept beside her in the bed a Bible and a knife, the fairies of Orkney being apparently as much alarmed at the sight of these objects as the 'Good People' of the Border were said to be by the homely blue bonnet when it reposed on the bed of a lying-in woman. To 'make assurance double sure,' however, relays of neighbors were called in for several nights to rock the cradle and shield its occupant from the nocturnal attacks of its mischievous enemies. A careful father, moreover, would ensure his child's future prosperity by arranging for its first drink to be taken off silver; and many were the expedients resorted to in poor homes, the most usual being to place a silver coin (frequently borrowed for the occasion) in the horn spoon, which served as the baby's pap-boat. Orcadian children must have been a hardy race, for in those days the first nourishment administered to the newly-born infant was a teaspoonful of toddy, and not infrequently both mother and nurses were anything but sober at the time of his birth. The nursing, therefore, both of mother and child, must have been of the most primitive description, and 'this combined with the fact that it was but seldom that a doctor or a trained accoucheuse was called, clearly shows that the successful result of such incompetent obstetrics may be pertinently described as 'the survival of the fittest.' "

Correspondence.

MOVING PICTURES AND THE EYES.

BOSTON, Sept. 26, 1914.

Mr. Editor: It should interest the editor of the article upon "Moving Pictures" in the JOURNAL for Sept. 24, to know that "eye-strain," as such never exists in normal eyes. If the refractive errors are first corrected with suitable lenses and any "asthenopia" still present relieved by removing reflex inhibitory effects upon the ciliary muscles through nasal diseases there can be no danger to eyes from the kinematograph. It may also interest the editor to know that the optical defects of the machine are also being "treated" mechanically here in this city. Later it is proposed to add acoustical effects by which the same source of illumination will supply light and sound through the films.

EDMUND D. SPEAR, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING SEPT. 26, 1914.

Sept. 22, Surgeon R. E. Hoyt, from *Illinois* to *Wisconsin.*

P. A. Surgeon T. W. Raison, from *Maine* to Naval Hospital, Great Lakes, Ill.

Asst. Surgeon W. A. Brams, to Naval Medical School, Washington, D. C.

Asst. Surgeon C. P. Depping, to Naval Medical School, Washington, D. C.

Asst. Surgeon R. L. Natkemper, to Naval Medical School, Washington, D. C.

Asst. Surgeon Arthur Freeman, to Naval Medical School, Washington, D. C.

Asst. Surgeon E. L. Matthews, to Naval Medical School, Washington, D. C.

Asst. Surgeon A. C. Thompson, to Naval Medical School, Washington, D. C.

Asst. Surgeon F. L. Conklin, to Naval Medical School, Washington, D. C.

P. A. Surgeon W. L. Angwin, from *West Virginia* to Asiatic Station.

P. A. Surgeon J. E. Gill, from *Tonapah* to home and wait orders.

P. A. Surgeon W. H. Halsey, from *Montana* to *Tonapah*.

P. A. Surgeon J. G. Ziegler, to *Georgia*.

Sept. 23, Asst. Surgeon R. M. Little, M.R.C., detached Marine Expeditionary Force, Atlantic Fleet, to home.

Asst. Surgeon Talmadge Wilson, M.R.C., to Naval Medical School, Washington, D. C.

Sept. 25, Surgeon J. P. Traynor, from *Dolphin* to Navy Recruiting Station, Boston, Mass.

P. A. Surgeon D. H. Noble, from *Ohio* to *Dolphin*.

NOTICES.

THE HARVEY SOCIETY.—The first lecture of the series will be given at the New York Academy of Medicine, 17 West 43d Street, on Saturday evening, Oct. 10, at 8.30 P.M., by Prof. Frederick P. Gay, of the University of California. Subject: "Experimental Studies on Methods of Anti-Typhoid Immunization."

MASSACHUSETTS GENERAL HOSPITAL.—ETHER DAY ADDRESS.—Members of the medical profession are invited to attend the Ether Day address by Dr. John M. T. Finney. Subject: "The Significance of Pain," on Oct. 16, 1914, at 4.00 P.M., to be held in the lower out-patient amphitheatre on Fruit Street, Massachusetts General Hospital.

THE AMERICAN SOCIAL HYGIENE ASSOCIATION and THE SOCIETY OF SANITARY AND MORAL PROPHYLAXIS will hold a conference in New York City, October 9 and 10, 1914. Charles W. Eliot, LL.D., president, The American Social Hygiene Association; Edward L. Keyes, Jr., M.D., president, The Society of Sanitary and Moral Prophylaxis.

APPOINTMENTS.

UNIVERSITY OF ILLINOIS.—*Dr. Daniel A. K. Steele* has been appointed senior dean and head of the department of surgery in the college of medicine of the University of Illinois; *D. Charles Spencer Williamson*, professor of medicine and head of the department; *Dr. Charles Summer Bacon*, professor of obstetrics and head of the department of obstetrics and gynecology; *Dr. Julius Hays Hess*, associate professor of pediatrics and head of the division of pediatrics; *Dr. Norval Pierce*, professor of otology; *Dr. Joseph C. Beck*, associate professor of laryngology and rhinology and head of the division; *Dr. Oscar Eugene Nadeau*, instructor in surgical pathology; *Dr. A. O. Shoklee*, associate professor of pharmacology; *Dr. Roy L. Moodie*, instructor in anatomy, and *Dr. C. S. Smith*, instructor in physiological chemistry.

UNIVERSITY OF SHEFFIELD.—*Dr. J. B. Leathes, F.R.S.*, professor of pathologic chemistry in the University of Toronto, has been appointed to the chair of physiology at the University of Sheffield.

WASHINGTON UNIVERSITY MEDICAL SCHOOL. *Dr. Ernest Sachs*, formerly associate in surgery, has been appointed associate professor of surgery in the same institution.

RECENT DEATHS.

DR. JOHN LANSON ADAMS, who died on Sept. 25 in New York City, was born at Westport, Conn., on Aug. 9, 1860. He graduated from Yale College in 1883, and in 1886 received the degree of M.D. from the New York College of Physicians and Surgeons. After studying abroad he became a practitioner of opthalmology and otology. He was president of the West Side German Dispensary, and director of St. Bartholomew's clinic. He is survived by his widow, by one son, and by two brothers, likewise physicians.

DR. JAMES BATCHELDER BELL, who died on Sept. 26 in Boston, was born at Monson, Me., in 1838. He received the degree of M.D. in 1859 from the Hahnemann Medical School of Philadelphia. After studying abroad, he settled in the practise of his profession at Boston, and in 1885 became a surgeon to the Massachusetts Homeopathic Hospital, a position which he continued to hold until 1912. He was a member of the International Hahnemannian Society, the American Institute of Homeopathy, the Massachusetts Homeopathic Medical Society, the Massachusetts Surgical and Gynecological Society, and the Boston Homeopathic Medical Society. He is survived by one daughter and one son.

DR. SOLON MARKS, who died on Sept. 29 at Milwaukee, Wis., was born in 1827. He served throughout the Civil War as surgeon of the Tenth Wisconsin, and as brigade and division surgeon in the Fourteenth Army Corps. He was a founder of the American Medical Association.

DR. PHILIP MOONEY, one of the leading physicians of Gloucester, Mass., died at his home in that city Sept. 27, of heart disease, aged 50 years. He was born in Lowell, Mass., was a graduate of the University of Vermont, College of Medicine, in 1882, and had practised in Gloucester since 1884, when he joined The Massachusetts Medical Society. He was a member of the Cape Ann Medical Society and a charter member of St. Ann's Court, M.C.O.F. He is survived by a widow.

DR. ROBERT WHITE, who died on Sept. 27 at Cambridge, Mass., was born in Ireland in 1823. After receiving the degree of M.B. from the University of Glasgow, he became a licentiate at the Apothocaries' Hall, Dublin, and in 1844 a member of the Royal College of Surgeons of England. Migrating to the United States, he settled at Boston, where he continued in the practise of his profession until 1909. He had been a Fellow of The Massachusetts Medical Society since 1846. He is survived by his widow and by three children.

DR. JOHN MCGAW WOODBURY, a retired physician of New York, died at his country residence at Southampton, Long Island, on Sept. 23. He was born in New York in 1855 and, after graduation from Bellevue Hospital Medical College in 1881, spent some time in study abroad. During the Spanish-American War he served as division surgeon, with the rank of major. After the annexation of Porto Rico he was made medical director of Ponce, the second city in importance of the island. Here his admirable work in sanitation attracted so much attention that the U. S. Government sent him abroad to study the sanitary arrangements of the German army in field operations. Later he returned to civil life, and on account of his special qualifications for the post, Mayor Low appointed him commissioner of street cleaning. He was continued in this office by Mayor McClellan, and served in it until near the close of the latter's second term.

DR. JAMES NEIL, of New York, who was associated for many years with two of America's most illustrious surgeons, first with Valentine Mott and later with Marion Sims, died on Sept. 28, from pneumonia. Dr. Neil was graduated from the medical department of the University of the City of New York in 1850, and from 1862 to 1868 he was a U. S. pension surgeon.